

Exhibit G

(JPMC Exhibit 6)

PART 1 OF 2

Wapp Tech Limited Partnership et al. v. JPMorgan Chase Bank, N.A., No. 4:23-cv-1137 (E.D. Tex.)

EXHIBIT D-4c

Invalidity of U.S. Patent No. 10,353,811 Based on the Flash MX Professional 2004 System

As described in the following claim chart, claims 1, 2, 4, 5, 8, 9, 22, 24 and 26 of U.S. Patent No. 10,353,811 (the '811 patent) are invalid because they are anticipated under 35 U.S.C. § 102 by the Flash MX Professional 2004 system and/or would have been obvious under 35 U.S.C. § 103 over the Flash MX Professional 2004 system and/or the knowledge of a person of ordinary skill in the art ("POSA").

The Flash MX Professional 2004 software product was publicly released by Macromedia, Inc., no later than September 10, 2003. Manuals and other publications describing Flash MX Professional 2004 were concurrently available. The i-mode HTML Simulator feature was concurrently available, and instructions for downloading and using the feature were concurrently available and provided with Flash MX Professional 2004. A software update for Flash MX Professional 2004, adding Flash Lite 1.1 functionality, was publicly released by Macromedia, Inc., no later than June 26, 2004. Manuals and other publications describing Flash Lite 1.1 were concurrently available. Under the EDTX Model Order Focusing Patent Claims and Prior Art to Reduce Costs, "associated references that describe that instrumentality shall count as one reference, as shall the closely related work of a single prior artist." (EDTX Model Order Focusing Patent Claims and Prior Art to Reduce Costs, at 1 n.1.) The following associated references all describe the Flash MX Professional 2004 instrumentality and, therefore, together with the software product itself collectively count as one reference ("Flash MX Professional 2004 system" or "Flash MX Professional 2004"):

- *Flash MX 2004 Using Flash*, copyright Macromedia, Inc., dated September 2003, provided with the software product and concurrently published at <http://www.macromedia.com/support/documentation/en/flash/> ;
- *Flash MX 2004 Getting Started with Flash*, copyright Macromedia, Inc., dated September 2003, provided with the software product and concurrently published at <http://www.macromedia.com/support/documentation/en/flash/> ;
- *Flash MX Professional 2004 Flash Lite Authoring Guidelines for the i-mode Service by NTT DoCoMo*, copyright Macromedia, Inc., dated March 2003, provided with the software product and concurrently published at <http://www.macromedia.com/support/documentation/en/flash/> ;
- *Flash MX Professional 2004 Flash Lite User Guide*, copyright Macromedia, Inc., dated August 2003, provided with the software product and concurrently published at <http://www.macromedia.com/support/documentation/en/flash/> ;
- Bill Perry, *New Features for Mobile and Devices Developers in Macromedia Flash MX Professional 2004* ("Perry"), published by Macromedia, Inc., no later than September 9, 2003, concurrently with and on the same website as the software product;
- Matthew David, *Building Great Flash MX Games* ("David"), copyright date 2003;
- *Flash MX Professional 2004 Flash Lite 1.1 Authoring Guidelines*, copyright Macromedia, Inc., dated June 2004 and concurrently published at <http://www.macromedia.com/support/documentation/en/flash/> .

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Because the Flash MX Professional 2004 software product with its Flash Lite 1.1 update was released no later than June 2004, the Flash MX Professional 2004 system qualifies as prior art at least under pre-AIA 35 U.S.C. §§ 102(a) and (b) based on Wapp's earliest claimed priority date of June 10, 2005 (the date of Provisional Application No. 60/689,101). As set forth in Defendant's ("JPMC's") accompanying invalidity contention cover pleading, the Flash MX Professional 2004 system is prior art under pre-AIA 35 U.S.C. §§ 102(a) and (b) if it is determined that this asserted patent is entitled to a priority date of June 9, 2006 (the filing date of U.S. Patent App. No. 7,813,910). The Flash MX Professional 2004 system additionally qualifies as prior art at least under pre-AIA 35 U.S.C. § 102(f). The named inventor of the asserted patent admitted possessing prior knowledge of Flash and related technologies, including Flash Lite 1.1, Flash MX, Flash MX Professional 2004, and Studio 8, from Macromedia, Inc., as demonstrated in at least the Provisional Application No. 60/689,101 and U.S. Patent App. No. 7,813,910 and associated prior art disclosures, and in prior deposition testimony. Wapp also admits that the named inventor of the asserted patent possessed prior knowledge of Flash technology and in particular that the purported invention was a purported improvement on Macromedia's Flash development environment, as demonstrated at least in Wapp's response on May 8, 2024, to JPMC's interrogatory number 8.

To the extent the Flash MX Professional 2004 system does not expressly or inherently disclose one or more of the limitations of the claims, such limitations would have been obvious in view of the teachings of the Flash MX Professional 2004 system in combination with the knowledge of a POSA and/or one or more of the references identified in JPMC's Invalidity Contentions.

JPMC notes that obviousness analysis involves an expansive and flexible approach that takes into account the background knowledge, creativity, and common sense of a POSA. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418, 421 (2007). Accordingly, JPMC reserves the right to supplement these statements of obviousness based on further discovery and developments in this case, such as the Court's claim construction.

The chart below provides representative examples of where each element of each claim is found in the referenced prior art. Citations are meant to be exemplary, not exhaustive, and JPMC reserves the right to identify and discuss additional portions of the referenced prior art in support of its contentions and/or to rebut arguments made by Wapp. Citations to figures, drawings, tables, and the like include reference to any accompanying or related text. All internal cross references are meant to incorporate the cross-referenced material as if fully set forth therein.

Wapp's Infringement Contentions have not established that JPMC infringes any valid claim. Thus, JPMC's statements below should not be treated as an admission, implication, or suggestion that JPMC agrees with Wapp regarding either the scope, construction, or interpretation of any of the claims, or the infringement theories advanced by Wapp in its Infringement Contentions, including whether any claim satisfies 35 U.S.C. §§ 101 or 112. In certain cases, JPMC specified non-limiting examples of where its application of the prior art is based on Wapp's apparent application of the claim limitation in the Infringement Contentions. These statements are not

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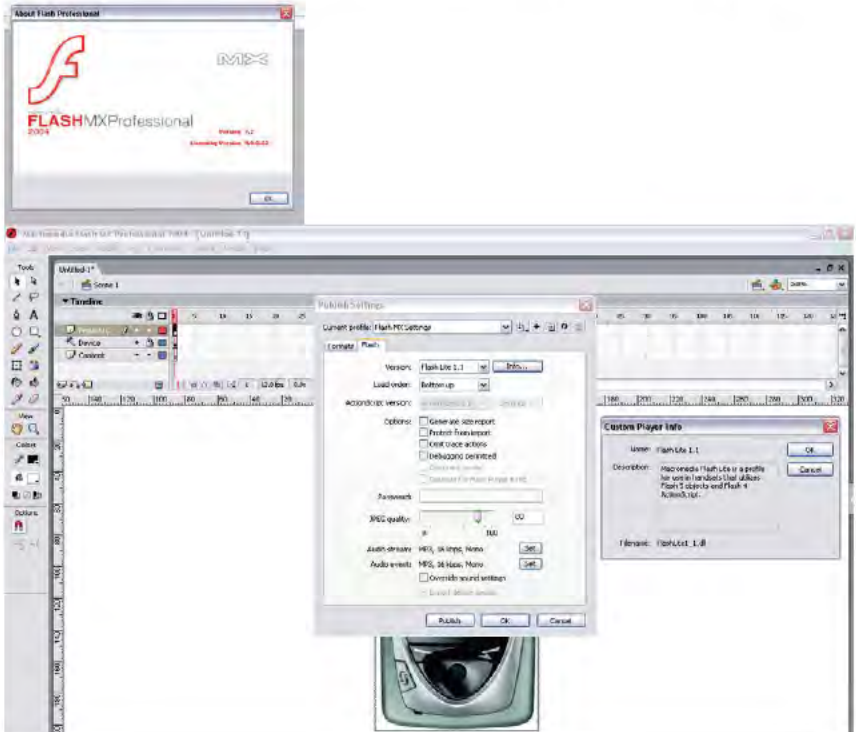
intended to suggest that JPMC agrees with Wapp's application of any claim term. The Court has not yet construed any disputed terms and, therefore, these invalidity contentions take into account all possible constructions. JPMC reserves the right to supplement these contentions after receiving the Court's claim construction or any Court ruling or change of position by Wapp on the priority dates to which Wapp is entitled.

Wapp has yet to identify in this case, any limitation of the claims that it contends is not anticipated and/or rendered obvious by the referenced documents, and/or knowledge of a POSA. JPMC therefore expressly reserves the right to respond to any such contention, including by identifying additional obviousness citations and/or combinations, if Wapp makes any such contentions.

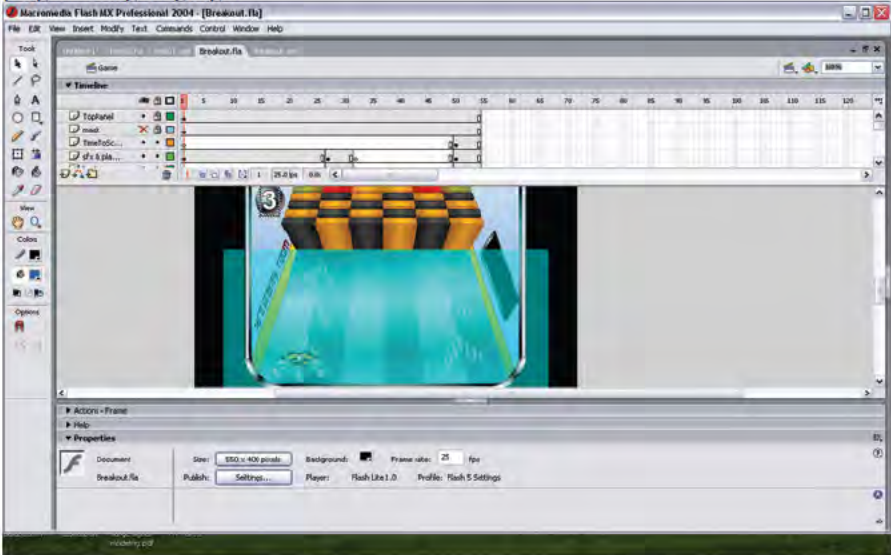
JPMC takes no position in these Invalidity Contentions on whether the preamble of each independent claim is limiting. To the extent each is limiting, the chart below provides examples of where each preamble limitation is found in this prior art.

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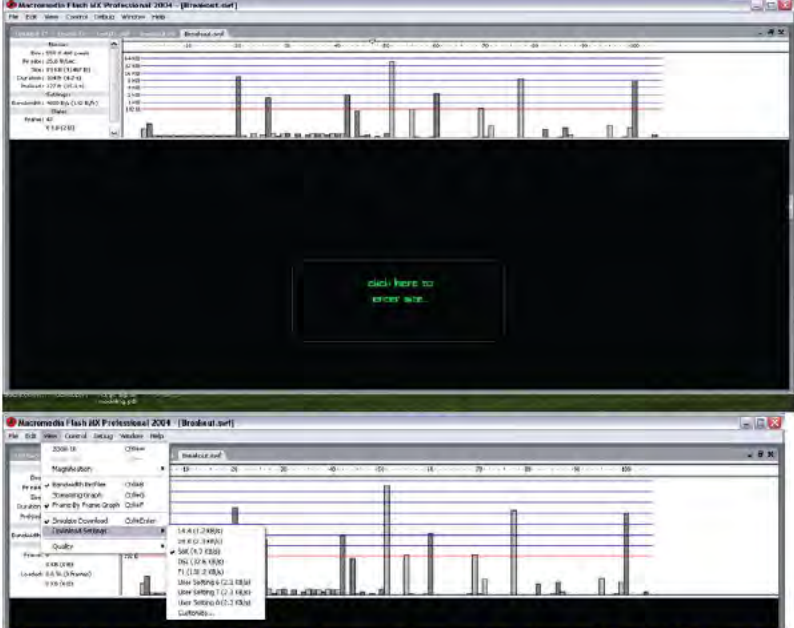
'811 patent

'811 Claim 1	Reference/Combination
<p>1[a] A non-transitory, computer-readable medium comprising software instructions for developing an application to be run on a mobile device, wherein the software instructions, when executed, cause a computer to:</p>	<p>The Flash MX Professional 2004 system discloses this limitation.</p> <p>For example, the following are screenshots from Flash MX Professional 2004.</p> 


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'811 Claim 1	Reference/Combination
	<p>Flash MX Professional 2004 with Flash Lite 1.1 update and NTT DoCoMo i-mode simulator 7.2 feature. Flash MX Professional 2004 is a system for developing and testing an application for a mobile device, and it can publish Flash applications to “handsets” (see above window entitled “Custom Player Info”).</p> <p>For example, Flash MX Professional 2004 enables a user to write code to develop visual applications such as animated games using the Flash MX Professional 2004 interface, which consists of at least a stage for imagery and a grid for a timeline. Flash MX Professional 2004 also enables the use of ActionScript, a programming language.</p> 

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'811 Claim 1	Reference/Combination
	 <p>Above is a screenshot of the software authoring interface of Flash MX Professional 2004 using Breakout.fla and Breakout.swf from Flash MX 2004 Games by Nik Lever.</p>

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811 Claim 1	Reference/Combination
	 <p>The screenshot displays the Macromedia Flash MX Professional 2004 software interface. The main workspace shows a black stage with a green 'action' button. The 'Actions - Frame' window is open, showing the following ActionScript code:</p> <pre> onClipEvent(MouseEvent.CLICK) { gotoAndPlayFromFrame(1); } </pre> <p>The interface also includes a timeline at the top, a Properties panel on the left, and a Project panel on the right.</p> <p>Screenshot of Flash MX Professional 2004 interface with “Actions – Frame” window enabling editing ActionScript scripts within the Flash application.</p> <p>For example, Flash MX Professional 2004 was provided on a CD (non-transitory, computer-readable medium comprising software instructions) and alternatively as a downloadable file intended for storage on a hard drive or other storage medium (non-transitory, computer-readable medium comprising software instructions).</p> <p>[Flash MX 2004 Getting Started with Flash, p. 14]</p>

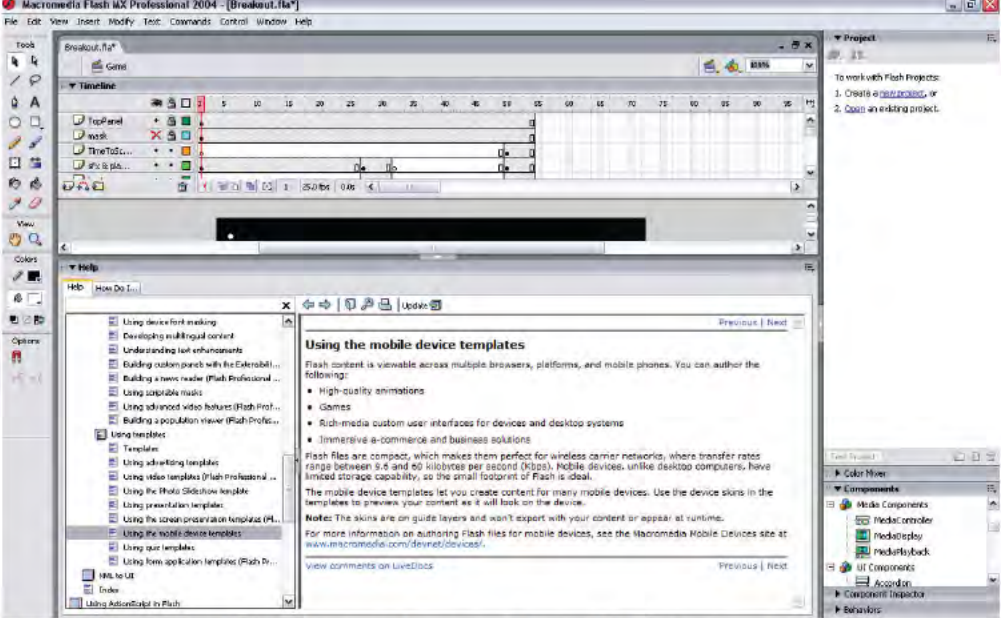
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811 Claim 1	Reference/Combination
	<p>Do one of the following to start the installation process: [¶] (Windows) If you have a CD, insert it in your CD drive. A Flash movie plays that guides you through installation choices. [...] If you have downloaded Flash from the Internet, double-click FlashMX2004Installer.exe (Windows), or double-click the Installer icon (Macintosh) and follow the onscreen instructions.</p> <p>For example, Flash MX Professional 2004 is software installed on the user's computer. Intrinsic to software installation is a non-transitory, computer-readable medium comprising software instructions.</p> <p>[Flash MX 2004 Using Flash, p. 178] You can install the FLV Export plug-in after installation of Flash MX Professional 2004 is complete.</p> <p>For example, Flash MX Professional 2004 comprises software instructions for developing an application to be run on a mobile device.</p> <p>[Flash MX 2004 Using Flash, p. 390] Flash content is viewable across multiple browsers, platforms, and mobile phones. You can author the following:</p> <ul style="list-style-type: none"> • High-quality animations • Games • Rich-media custom user interfaces for devices and desktop systems • Immersive e-commerce and business solutions [¶] <p>In addition, Flash files are compact, making them perfect for wireless carrier networks, where transfer rates range between 9.6 and 60 kilobytes per second (Kbps). Mobile devices, unlike desktop computers, have limited storage capability, so the small footprint of Flash is ideal. [¶]</p> <p>The mobile device templates let you create content for many mobile devices available today. Use the device skins in the templates to preview your content as it will look on the device. [¶] Note: The skins are on guide layers and won't export with your content or appear at runtime. [¶] For more information on authoring Flash</p>

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811 Claim 1	Reference/Combination
	<p>files for mobile devices, please visit the Macromedia Mobile Devices site at www.macromedia.com/devnet/devices/.</p> <p>[<i>Flash MX 2004 Using Flash</i>, p. 39] Close the test window to return to the normal authoring environment. [¶] Once you've set up a test environment incorporating the Bandwidth Profiler, you can open any SWF file directly in test mode. The file opens in a Flash Player window, using the Bandwidth Profiler and other selected viewing options.</p> <p>[<i>Flash MX Professional 2004 Flash Lite User Guide</i>, p. 5] Macromedia has created a new Flash Player version, called Macromedia® Flash™ Lite, that runs on a new class of consumer mobile devices. This format is designed to run optimally on devices with limited resources (memory, processor speed, display area). [...] With Macromedia Flash MX Professional 2004, you can author, preview, publish, and validate content for Flash Lite.</p> <p>[<i>Flash MX 2004 Using Flash</i>, p. 18] ActionScript is the Flash scripting language that enables you to add complex interactivity, playback control, and data display to a Flash document. You can add ActionScript within the Flash authoring environment using the Actions panel [...]</p> <p>For example, Flash MX Professional 2004 comprised software instructions that, when executed, cause a computer to carry out the claimed steps, as described below.</p> <p>To the extent this limitation is not explicitly disclosed by the Flash MX Professional 2004 system, it is inherent or would have been obvious to a POSA from the teachings of the Flash MX Professional 2004 system, the knowledge of a POSA, and/or one or more of the references identified in JPMC's Invalidity Contentions.</p>
1[b] display a list of a plurality of	The Flash MX Professional 2004 system discloses this limitation.

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*811 Claim 1	Reference/Combination
mobile device models from which a user can select,	 <p>Flash MX Professional 2004 showing information about mobile device templates.</p> <p>For example, Flash MX Professional 2004 displays a list of a plurality of mobile device models from which a user can select, including Nokia 3650, Nokia 9200, Sony CLIE UX50, and iPAQ 5440. Each mobile device model includes characteristics indicative of the device such as stage size (screen size), frame rate, a full-size image of the specific device, and the correct Flash publishing settings, including the Flash Player version. These characteristics indicative of the mobile device are simulated when testing the Flash application.</p>

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'811 Claim 1	Reference/Combination
	<p data-bbox="378 604 751 632"><i>[Flash MX 2004 Using Flash, p. 390]</i></p> <p data-bbox="378 632 1386 684">Flash content is viewable across multiple browsers, platforms, and mobile phones. You can author the following:</p> <ul data-bbox="378 684 1057 800" style="list-style-type: none"> <li data-bbox="378 684 634 714">• High-quality animations <li data-bbox="378 714 464 741">• Games <li data-bbox="378 741 1057 770">• Rich-media custom user interfaces for devices and desktop systems <li data-bbox="378 770 886 800">• Immersive e-commerce and business solutions [¶] <p data-bbox="378 831 1438 915">In addition, Flash files are compact, making them perfect for wireless carrier networks, where transfer rates range between 9.6 and 60 kilobytes per second (Kbps). Mobile devices, unlike desktop computers, have limited storage capability, so the small footprint of Flash is ideal. [¶]</p> <p data-bbox="378 947 1450 1083">The mobile device templates let you create content for many mobile devices available today. Use the device skins in the templates to preview your content as it will look on the device. [¶] Note: The skins are on guide layers and won't export with your content or appear at runtime. [¶] For more information on authoring Flash files for mobile devices, please visit the Macromedia Mobile Devices site at www.macromedia.com/devnet/devices/.</p> <p data-bbox="378 1115 865 1142"><i>[Flash MX 2004 Getting Started with Flash, p. 6]</i></p> <p data-bbox="378 1142 1433 1226">Updated templates[:] Flash includes updated templates for creating presentations, e-learning applications, advertisements, mobile device applications, and other commonly used types of Flash documents. For more information, see "Using templates" in Using Flash Help.</p> <p data-bbox="378 1257 878 1285"><i>[Flash MX 2004 Getting Started with Flash, p. 11]</i></p> <p data-bbox="378 1285 1455 1451">The Start page provides easy access to your most frequently used actions, either at the start of a session or whenever no open documents are in the application window. [¶] The Start page contains the following areas: [¶] Open a Recent Item lets you view your most recent documents. [¶] Open displays the Open File dialog box. [¶] Create New offers a list of file types from which to choose, such as ActionScript or document, for a quick way to open a new file. [¶] Create from Template lists the templates most commonly used to create new documents and allows you to select from the list.</p> <p data-bbox="378 1482 448 1509">[Perry]</p>

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'811 Claim 1	Reference/Combination
	<p>New Features for Mobile and Devices Developers [¶] Both products offer the new mobile devices templates, however, only Macromedia Flash MX Professional 2004 provides functionality specific to mobile device development:</p> <ul style="list-style-type: none">Mobile devices templatesMIDI ring tone supportTest device emulatorsAlias text support [¶] <p>In the following section, I'll give you a little more information about these new features and what they mean to you. [¶]</p> <p>Authoring Content for Devices [¶] Exporting Content for Various Versions of Macromedia Flash Player [¶] When authoring for mobile devices, you need to use the correct Macromedia Flash publish settings based on the Macromedia Flash Player requirements of your target device. For more information on some of the devices that play Macromedia Flash content, refer to the Mobile and Devices Developer Center for a list of devices and content development kits for each. [¶]</p> <p>To customize your Macromedia Flash publish settings, you can select an option from the Flash tab of the Publish Settings window. You can access this window in three different ways:</p> <ul style="list-style-type: none">Select File > Publish Settings.Press the Settings button on the Property inspector with the Stage selected.Use a keyboard shortcut: Control-Shift-F12. [¶]

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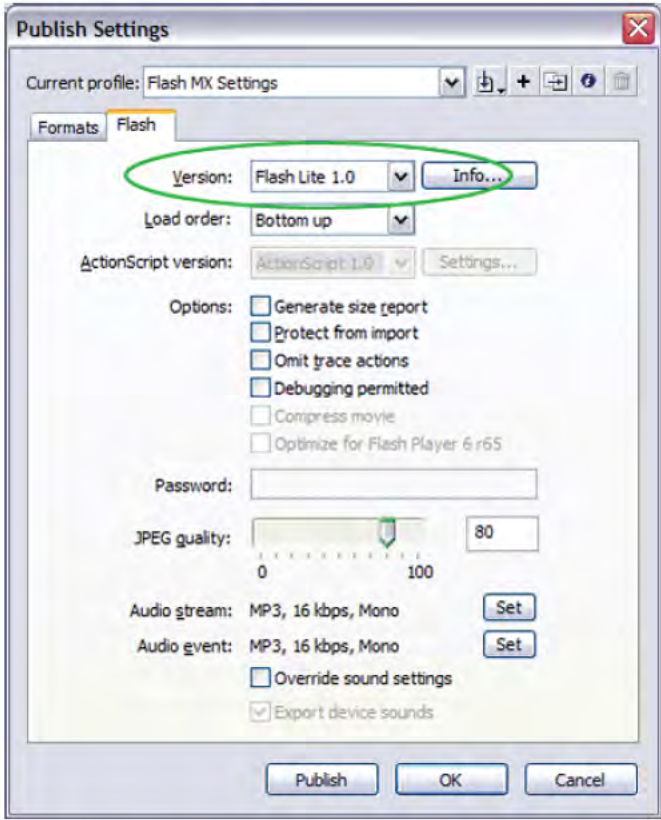
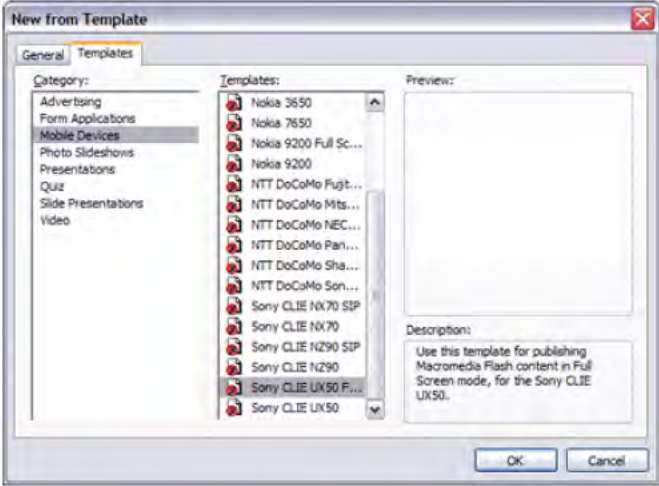

811 Claim 1	Reference/Combination
	<div data-bbox="376 625 1032 1440">The image shows the 'Publish Settings' dialog box in Macromedia Flash. The 'Flash' tab is selected. The 'Version' dropdown is set to 'Flash Lite 1.0' and is circled in green. The 'Info...' button is also circled in green. Other settings include 'Load order' set to 'Bottom up', 'ActionScript version' set to 'ActionScript 1.0', and various options like 'Generate size report', 'Protect from import', 'Omit trace actions', 'Debugging permitted', 'Compress movie', and 'Optimize for Flash Player 6 r65'. The 'JPEG quality' is set to 80. The 'Audio stream' and 'Audio event' are both set to 'MP3, 16 kbps, Mono'. The 'Override sound settings' checkbox is unchecked, and 'Export device sounds' is checked. The 'Publish', 'OK', and 'Cancel' buttons are at the bottom.</div>

Figure 2. Macromedia Flash publish settings. [¶]

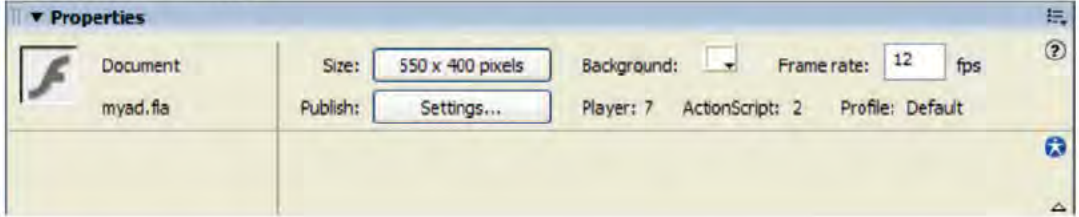
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811 Claim 1	Reference/Combination
	<p>If you're using the built-in templates for devices, then Flash presets the Flash Player publish settings for each device. However, if you're not using the templates, then you'll need to be ensure that you customize the settings for your device. ¶ The only setting you need to change is the Version setting. Select the proper version of Macromedia Flash Player in the pop-up menu. The rest of the settings are optional and you can refer to the Flash MX Professional 2004 Help panel for additional information on them. [...]</p> <p>Device Templates ¶ New to Macromedia Flash MX Professional 2004 and Macromedia Flash MX 2004 are 22 templates you can use to create content for all of the currently supported mobile devices. You can access them from the Flash start page or by selecting File > New. Click the Template tab in the New from Template dialog box (Figure 6) and select Mobile Devices in the Category pane. ¶</p>  <p>Figure 6. Mobile Devices templates. ¶</p>

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'811 Claim 1	Reference/Combination
	<p>These templates take the guess work out of developing Macromedia Flash content for specific platforms. They set the correct stage size, load a full-size image of the specific device in a guide layer, and preset the correct Flash publishing settings. All you need to do is to create the content based on the development kit recommendations for each platform. You can find content development kits for each platform in the Macromedia Mobile and Devices Developer Center. [¶]</p> <p>For example, if you open up the iPAQ 5440 Full Screen template, here's what you will see: [¶]</p>  <p>Figure 7. iPAQ 5440 Full Screen template opened in the authoring environment. [¶]</p> <p>Be sure to use these templates when creating content for mobile devices—they'll definitely save you time.</p> <p>[Flash MX 2004 Getting Started with Flash, p. 49]</p>

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'811 Claim 1	Reference/Combination
	<div data-bbox="378 604 1450 819">  </div> <p data-bbox="378 905 1450 1016">To the extent this limitation is not explicitly disclosed by the Flash MX Professional 2004 system, it is inherent or would have been obvious to a POSA from the teachings of the Flash MX Professional 2004 system, the knowledge of a POSA, and/or one or more of the references identified in JPMC's Invalidity Contentions.</p>
1[c] wherein each model includes one or more characteristics indicative of a corresponding mobile device;	The Flash MX Professional 2004 system discloses this limitation.

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811 Claim 1

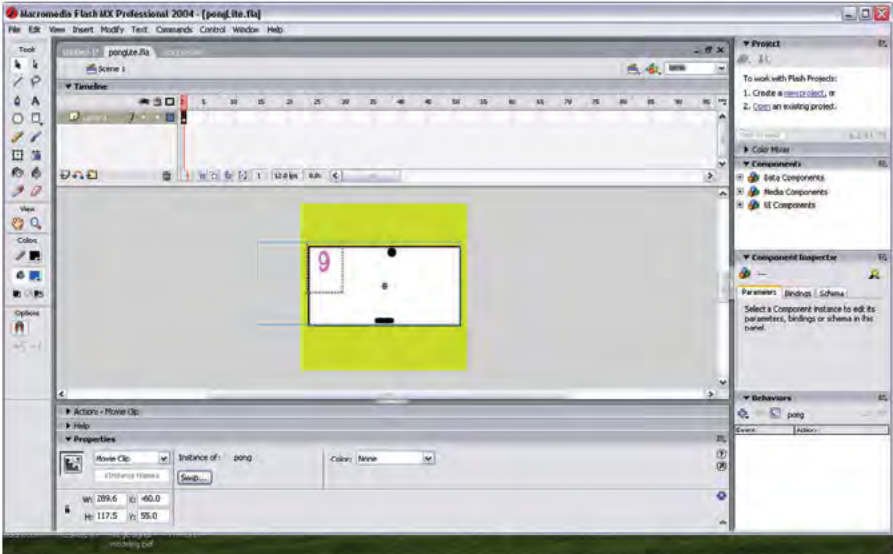
Reference/Combination

Flash MX Professional 2004

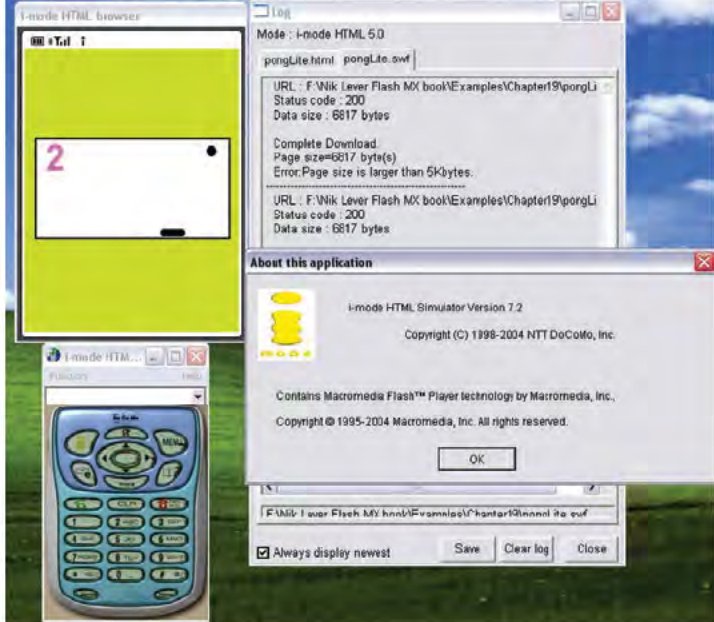
For example, Flash MX Professional 2004 displays a list of a plurality of mobile device models from which a user can select, including Nokia 3650, Nokia 9200, Sony CLIE UX50, and iPAQ 5440. Each mobile device model includes characteristics indicative of the device such as stage size (screen size), frame rate, a full-size image of the specific device, and the correct Flash publishing settings, including the Flash Player version. These characteristics indicative of the mobile device are simulated when testing the Flash application. See disclosures for claim limitation 1[b] (hereby incorporated by reference).

To the extent this limitation is not explicitly disclosed by the Flash MX Professional 2004 system, it is inherent or would have been obvious to a POSA from the teachings of the Flash MX Professional 2004

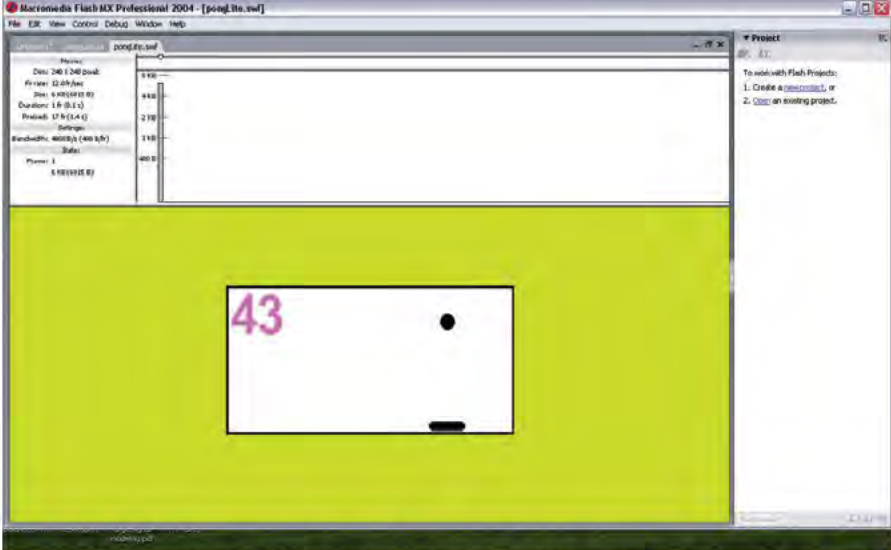
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*811 Claim 1	Reference/Combination
	system, the knowledge of a POSA, and/or one or more of the references identified in JPMC's Invalidity Contentions.
1[d] simulate at least one of the one or more characteristics indicative of the mobile device corresponding to the selected mobile device model;	<p>The Flash MX Professional 2004 system discloses this limitation.</p>  <p>The screenshot displays the Macromedia Flash MX Professional 2004 software interface. The main workspace shows a yellow rectangular area representing a mobile device screen, with a small white rectangle inside it. The interface includes a menu bar at the top, a toolbar on the left, a timeline at the top of the workspace, and several panels on the right: 'Project', 'Color Mixer', 'Components', 'Component Inspector', 'Parameters', and 'Behaviors'. The 'Behaviors' panel is active, showing a 'ping' action. The bottom status bar indicates the current position on the timeline.</p>

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'811 Claim 1	Reference/Combination
	 <p>The screenshot displays the i-mode HTML Simulator Version 7.2 interface. On the left, a game window titled 'i-mode HTML browser' shows a yellow background with a white rectangular area containing the number '2' and a small black dot. Below this, a blue mobile phone is visible. On the right, a 'Log' window shows the following text: 'Mode: i-mode HTML 5.0', 'pongLite.html pongLite.swf', 'URL: F:\Nik Lever Flash MX book\Examples\Chapter19\pongLi', 'Status code: 200', 'Data size: 6617 bytes', 'Complete Download', 'Page size: 6617 byte(s)', 'Error: Page size is larger than 5Kbytes.', 'URL: F:\Nik Lever Flash MX book\Examples\Chapter19\pongLi', 'Status code: 200', 'Data size: 6617 bytes'. Below the log window, an 'About this application' window is open, showing the i-mode HTML Simulator logo, version 7.2, copyright (C) 1998-2004 NTT DoCoMo, Inc., and a note that it contains Macromedia Flash Player technology by Macromedia, Inc., with copyright (C) 1995-2004 Macromedia, Inc. All rights reserved. An 'OK' button is at the bottom of the 'About' window. At the very bottom, a file explorer window shows the path 'F:\Nik Lever Flash MX book\Examples\Chapter19\pongLi' and a checkbox for 'Always display newest'.</p>

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'811 Claim 1	Reference/Combination
	 <p data-bbox="378 1155 1451 1182">Flash MX Professional 2004 simulating at least stage size (screen size), frame rate, and Flash Player version.</p> <p data-bbox="378 1266 1451 1436">For example, Flash MX Professional 2004 displays a list of a plurality of mobile device models from which a user can select, including Nokia 3650, Nokia 9200, Sony CLIE UX50, and iPAQ 5440. Each mobile device model includes characteristics indicative of the device such as stage size (screen size), frame rate, a full-size image of the specific device, and the correct Flash publishing settings, including the Flash Player version. These characteristics indicative of the mobile device are simulated when testing the Flash application. See disclosures for claim limitation 1[b] (hereby incorporated by reference).</p> <p data-bbox="378 1465 1451 1493">For example, these characteristics are simulated when testing the Flash application in the Bandwidth Profiler.</p>

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'811 Claim 1	Reference/Combination
	<p data-bbox="380 606 786 632"><i>[Flash MX 2004 Using Flash</i>, pp. 38–39]</p> <p data-bbox="380 634 1414 716">The Flash Player attempts to meet the frame rate you set; the actual frame rate during playback can vary on different computers. If a document that is downloading reaches a particular frame before the frame's required data has downloaded, the document pauses until the data arrives. [¶]</p> <p data-bbox="380 745 1463 856">To view downloading performance graphically, you can use the Bandwidth Profiler, which shows how much data is sent for each frame according to the modem speed you specify. The Bandwidth Profiler is divided into two panes. The left pane shows information about the document, the download settings, the state, and streams, if any are included. The right pane shows information about individual frames in the document. [¶]</p> <p data-bbox="380 886 1463 997">In simulating the downloading speed, Flash uses estimates of typical Internet performance, not the exact modem speed. For example, if you choose to simulate a modem speed of 28.8 Kbps, Flash sets the actual rate to 2.3 Kbps to reflect typical Internet performance. The profiler also compensates for the added compression support for SWF files, which reduces the file size and improves streaming performance. [¶]</p> <p data-bbox="380 1026 1463 1194">When external SWF files, GIF and XML files, and variables are streamed into a player by using ActionScript calls such as loadMovie and getUrl, the data flows at the rate set for streaming. The stream rate for the main SWF file is reduced based on the reduction of bandwidth caused by the additional data requests. It's helpful to test your document at each speed you intend to support, and on each computer you intend to support. This helps you ensure that the document doesn't overburden the slowest connection and computer it is designed for. [¶]</p> <p data-bbox="380 1224 1442 1278">You can also generate a report of frames that are slowing playback, and then optimize or eliminate some of the content in those frames. See "Optimizing Flash documents" on page 36. [¶]</p> <p data-bbox="380 1308 1442 1365">To change the settings for the SWF file created using the Test Movie and Test Scene commands, use File > Publish Settings. See "Publishing Flash documents" on page 281. [¶]</p> <p data-bbox="380 1394 1463 1503">To test download performance: [¶] Do one of the following: [¶] Select Control > Test Scene or Control > Test Movie. [¶] If you test a scene or document, Flash publishes the current selection as a SWF file using the settings in the Publish Settings dialog box. (See "Publishing Flash documents" on page 281.) The SWF file opens in a new window and begins playing immediately. [¶] Select File > Open, and select a SWF file. [¶]</p>

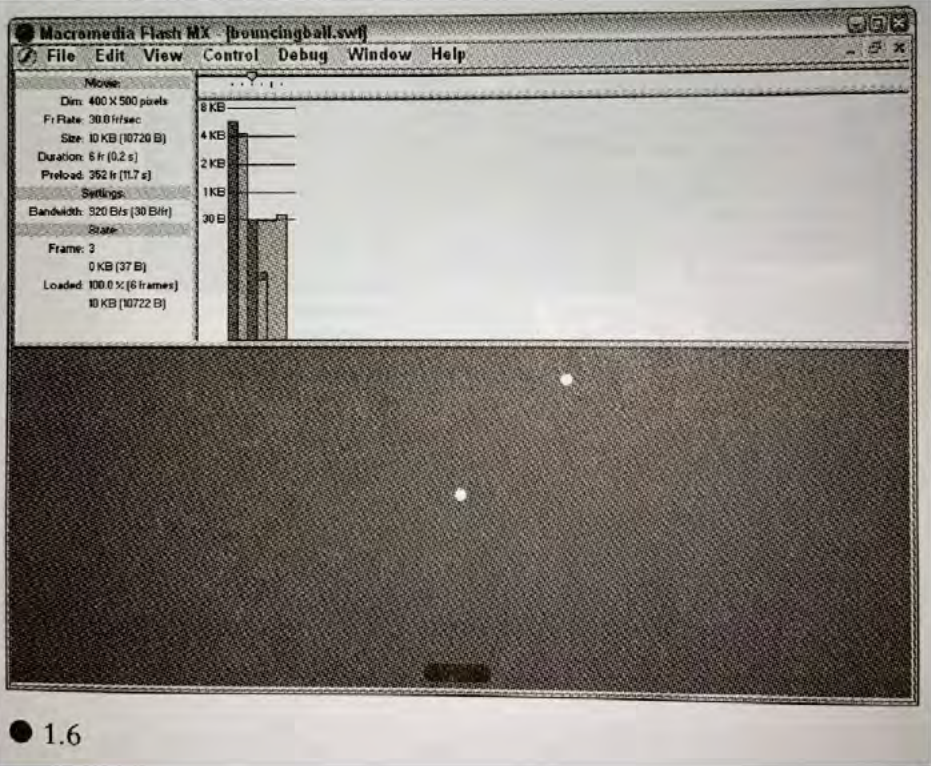
Wapp Tech Limited Partnership et al. v. JPMorgan Chase Bank, N.A., No. 4:23-cv-1137 (E.D. Tex.)

'811 Claim 1	Reference/Combination
	<p>Select View > Download Settings, and select a download speed to determine the streaming rate that Flash simulates: 14.4 Kbps, 28.8 Kbps, 56 Kbps, DSL, T1 or a User Setting. To enter your own User Setting, select Customize. [¶]</p> <p>When viewing the SWF file, select View > Bandwidth Profiler to display a graph of the downloading performance. [¶] The left side of the profiler displays information about the document, its settings, its state, and streams, if any are included in the document. [¶] The right section of the profiler shows the Timeline header and graph. In the graph, each bar represents an individual frame of the document. The size of the bar corresponds to that frame's size in bytes. The red line beneath the Timeline header indicates whether a given frame streams in real time with the current modem speed set in the Control menu. If a bar extends above the red line, the document must wait for that frame to load. [¶]</p> <p>Select View > Simulate Download to turn streaming off or on. [¶] If you turn streaming off, the document starts over without simulating a web connection. [¶]</p> <p>Click a bar on the graph to display settings for the corresponding frame in the left window and stop the document. [¶]</p> <p>If necessary, adjust the view of the graph: [¶] Select View > Streaming Graph to show which frames cause pauses. This default view displays alternating light and dark gray blocks representing each frame. The side of each block indicates its relative byte size. The first frame stores a symbol's contents, so it is often larger than other frames. [¶] Select View > Frame by Frame Graph to display the size of each frame. This view helps you see which frames contribute to streaming delays. If any frame block extends above the red line in the graph, the Flash Player halts playback until the entire frame downloads. [¶]</p> <p>Close the test window to return to the normal authoring environment. [¶] Once you've set up a test environment incorporating the Bandwidth Profiler, you can open any SWF file directly in test mode. The file opens in a Flash Player window, using the Bandwidth Profiler and other selected viewing options. [¶] For more information on debugging your documents, see "Writing and Debugging Scripts" in ActionScript Reference Guide Help. [¶]</p>

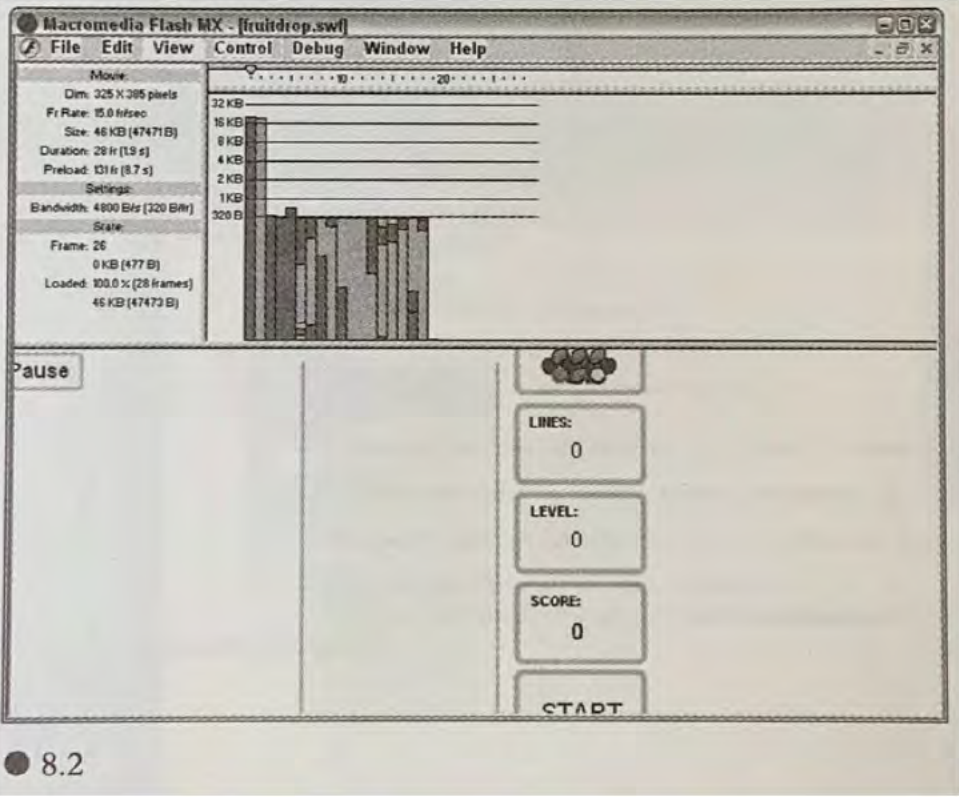
Wapp Tech Limited Partnership et al. v. JPMorgan Chase Bank, N.A., No. 4:23-cv-1137 (E.D. Tex.)

'811 Claim 1	Reference/Combination
	<p data-bbox="378 604 1458 659">To generate a report listing the amount of data in the final Flash Player file: [¶] Select File > Publish Settings and click the Flash tab. [¶] Select Generate Size Report. [¶] Click Publish. [¶]</p> <p data-bbox="378 688 1466 770">Flash generates a text file with the extension .txt. (If the document file is myMovie fla, the text file is myMovie Report.txt.) The report lists the size of each frame, shape, text, sound, video and ActionScript script by frame.</p> <p data-bbox="378 800 753 827">[Flash MX 2004 Using Flash, p. 390]</p> <p data-bbox="378 831 1442 913">In addition, Flash files are compact, making them perfect for wireless carrier networks, where transfer rates range between 9.6 and 60 kilobytes per second (Kbps). Mobile devices, unlike desktop computers, have limited storage capability, so the small footprint of Flash is ideal.</p> <p data-bbox="378 1001 1120 1026">David discloses, via screenshots, the appearance of the Bandwidth Profiler.</p> <p data-bbox="378 1056 505 1081">[David, p. 7]</p>

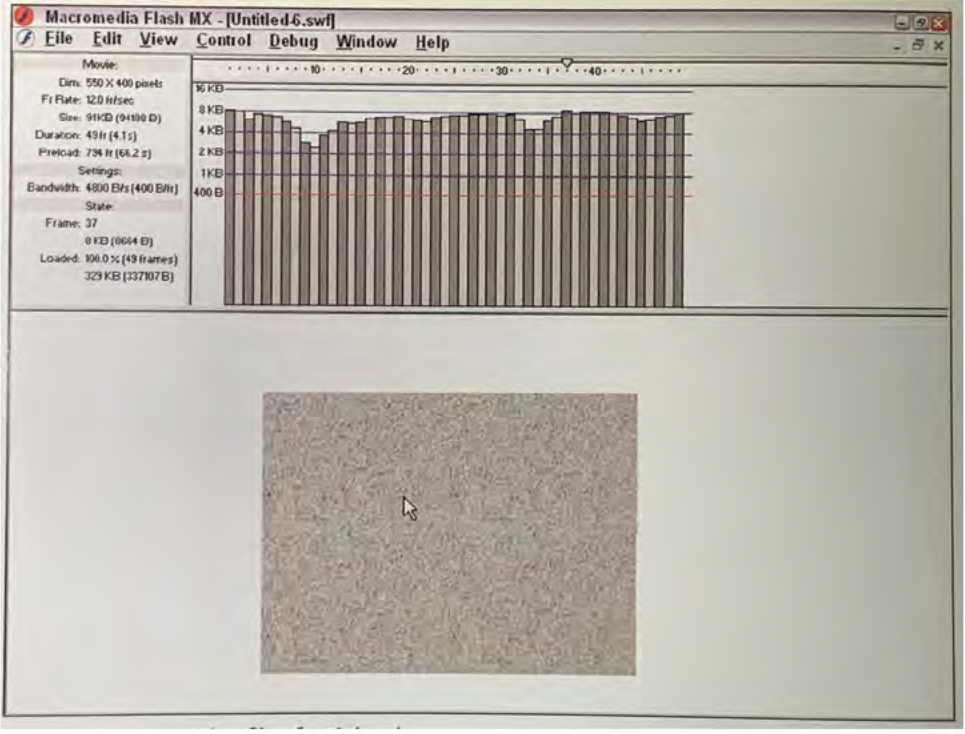
Wapp Tech Limited Partnership et al. v. JPMorgan Chase Bank, N.A., No. 4:23-cv-1137 (E.D. Tex.)

'811 Claim 1	Reference/Combination
	<div><p>● 1.6</p><p>[David, p. 98]</p></div>

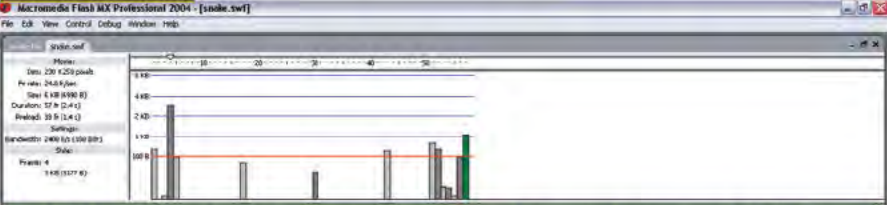
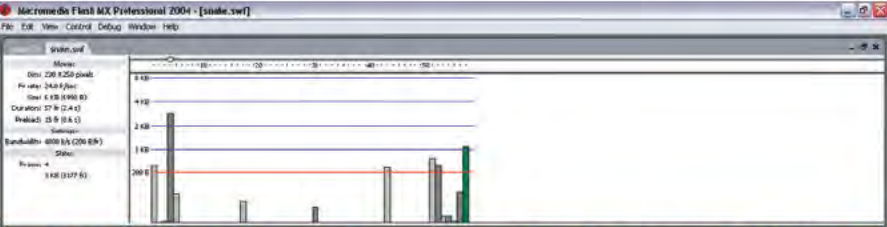
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'811 Claim 1	Reference/Combination
	 <p>Macromedia Flash MX - [fruitdrop.swf]</p> <p>File Edit View Control Debug Window Help</p> <p>Movie: Dim: 325 X 285 pixels Fr Rate: 15.0 fps/sec Size: 46 KB (47471 B) Duration: 28 fr (1.9 s) Preload: 131 fr (8.7 s) Settings: Bandwidth: 4800 B/s (320 B/fr) Scale: Frame: 26 0 KB (477 B) Loaded: 100.0 % (28 frames) 46 KB (47473 B)</p> <p>Pause</p> <p>fruit icon</p> <p>LINES: 0</p> <p>LEVEL: 0</p> <p>SCORE: 0</p> <p>START</p> <p>8.2</p> <p>[David, #18 of 32 unnumbered pages between pages numbered 192 and 193]</p>

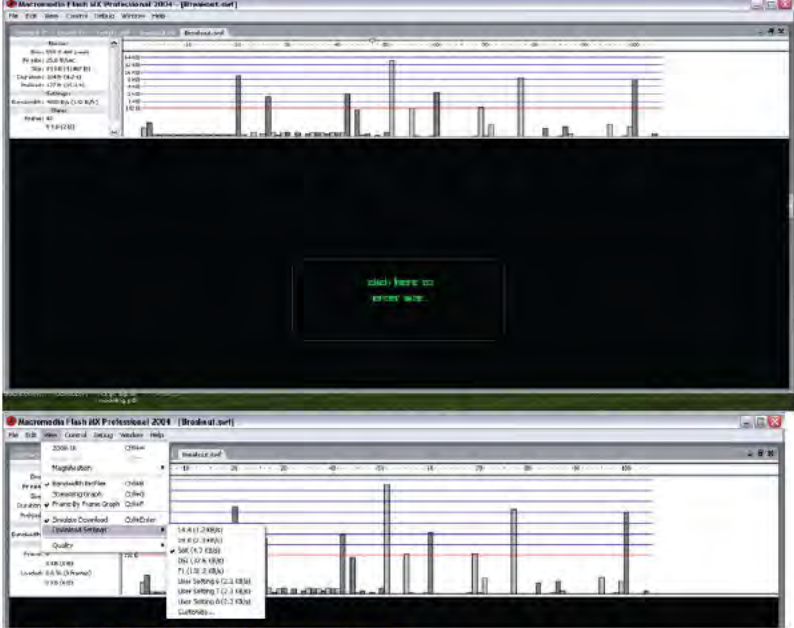
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'811 Claim 1	Reference/Combination
	 <p>The screenshot shows the Macromedia Flash MX Professional 2004 interface. The title bar reads 'Macromedia Flash MX - [Untitled6.swf]'. The menu bar includes 'File', 'Edit', 'View', 'Control', 'Debug', 'Window', and 'Help'. On the left, a 'Movie' panel displays properties: Dimensions: 550 X 400 pixels, Frame Rate: 12.0 fps, Size: 911KB (94100 B), Duration: 49 fr (4.1 s), Preload: 734 fr (68.2 s), Settings: Bandwidth: 4800 B/s (400 B/fr), State: Frame: 37, 0 KB (0664 B), Loaded: 100.0 % (49 frames), 329 KB (327707 B). The main workspace features a timeline at the top with a playhead at frame 40, and a video player below it showing a grainy, textured image. A mouse cursor is visible over the video player.</p> <p>To the extent this limitation is not explicitly disclosed by the Flash MX Professional 2004 system, it is inherent or would have been obvious to a POSA from the teachings of the Flash MX Professional 2004</p>

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’811 Claim 1	Reference/Combination
	system, the knowledge of a POSA, and/or one or more of the references identified in JPMC’s Invalidation Contentions.
1[e] simulate one or more characteristics indicative of a network on which the mobile device corresponding to the selected mobile device model can operate;	<p>The Flash MX Professional 2004 system discloses this limitation.</p> <p>For example, the Bandwidth Profiler simulates network characteristics while the Flash application runs in the emulator/simulator.</p>  <p>Bandwidth Profiler simulating a web connection and download at a speed of 28.8 kbps.</p>  <p>Bandwidth Profiler simulating a web connection and download at a speed of 56 kbps.</p> <p>Screenshots above from the Flash MX Professional 2004 emulator show a plurality of network characteristics, including “Bandwidth” and the amount of time needed for “Preload” for snake.swf.</p>

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’811 Claim 1	Reference/Combination
	 <p>Bandwidth Profiler simulation options.</p> <p>For example, the Bandwidth Profiler in Flash MX Professional 2004 simulates a download, modem speed, a web connection (a network connection state), compression, streams, typical Internet performance (bandwidth), and additional data requests, indicative of a network on which the mobile device corresponding to the selected mobile device model can operate.</p> <p>[Flash MX 2004 Using Flash, pp. 38–39]</p>

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'811 Claim 1	Reference/Combination
	<p>The Flash Player attempts to meet the frame rate you set; the actual frame rate during playback can vary on different computers. If a document that is downloading reaches a particular frame before the frame's required data has downloaded, the document pauses until the data arrives. [¶]</p> <p>To view downloading performance graphically, you can use the Bandwidth Profiler, which shows how much data is sent for each frame according to the modem speed you specify. The Bandwidth Profiler is divided into two panes. The left pane shows information about the document, the download settings, the state, and streams, if any are included. The right pane shows information about individual frames in the document. [¶]</p> <p>In simulating the downloading speed, Flash uses estimates of typical Internet performance, not the exact modem speed. For example, if you choose to simulate a modem speed of 28.8 Kbps, Flash sets the actual rate to 2.3 Kbps to reflect typical Internet performance. The profiler also compensates for the added compression support for SWF files, which reduces the file size and improves streaming performance. [¶]</p> <p>When external SWF files, GIF and XML files, and variables are streamed into a player by using ActionScript calls such as loadMovie and getUrl, the data flows at the rate set for streaming. The stream rate for the main SWF file is reduced based on the reduction of bandwidth caused by the additional data requests. It's helpful to test your document at each speed you intend to support, and on each computer you intend to support. This helps you ensure that the document doesn't overburden the slowest connection and computer it is designed for. [¶]</p> <p>You can also generate a report of frames that are slowing playback, and then optimize or eliminate some of the content in those frames. See "Optimizing Flash documents" on page 36. [¶]</p> <p>To change the settings for the SWF file created using the Test Movie and Test Scene commands, use File > Publish Settings. See "Publishing Flash documents" on page 281. [¶]</p> <p>To test download performance: [¶] Do one of the following: [¶] Select Control > Test Scene or Control > Test Movie. [¶] If you test a scene or document, Flash publishes the current selection as a SWF file using the settings in the Publish Settings dialog box. (See "Publishing Flash documents" on page 281.) The SWF file opens in a new window and begins playing immediately. [¶] Select File > Open, and select a SWF file. [¶]</p>

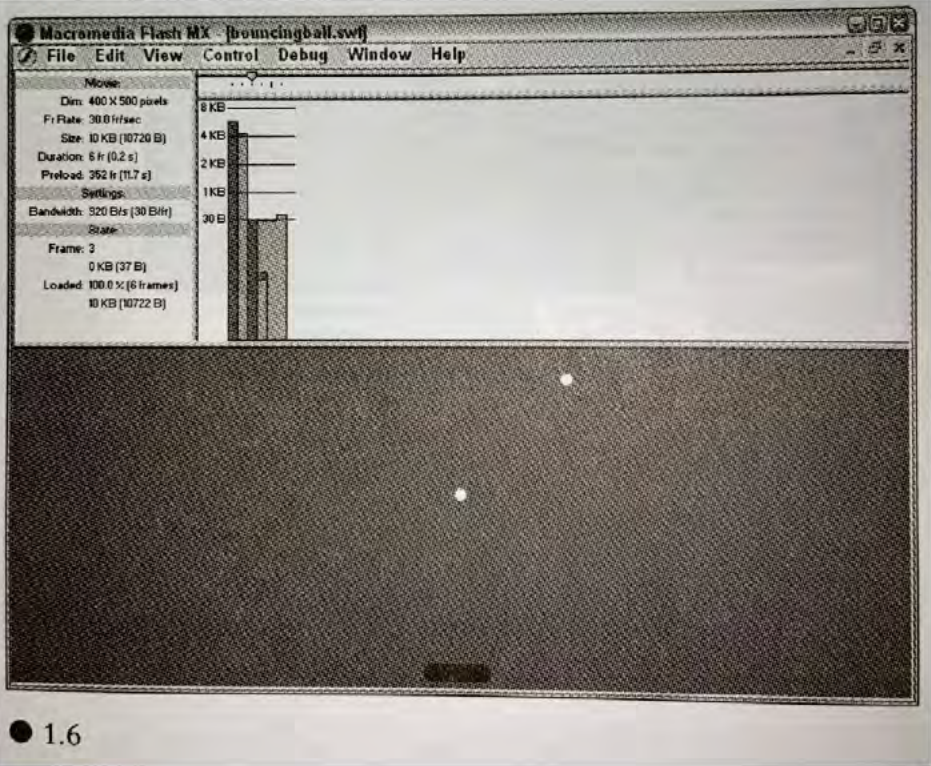
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'811 Claim 1	Reference/Combination
	<p>Select View > Download Settings, and select a download speed to determine the streaming rate that Flash simulates: 14.4 Kbps, 28.8 Kbps, 56 Kbps, DSL, T1 or a User Setting. To enter your own User Setting, select Customize. [¶]</p> <p>When viewing the SWF file, select View > Bandwidth Profiler to display a graph of the downloading performance. [¶] The left side of the profiler displays information about the document, its settings, its state, and streams, if any are included in the document. [¶] The right section of the profiler shows the Timeline header and graph. In the graph, each bar represents an individual frame of the document. The size of the bar corresponds to that frame's size in bytes. The red line beneath the Timeline header indicates whether a given frame streams in real time with the current modem speed set in the Control menu. If a bar extends above the red line, the document must wait for that frame to load. [¶]</p> <p>Select View > Simulate Download to turn streaming off or on. [¶] If you turn streaming off, the document starts over without simulating a web connection. [¶]</p> <p>Click a bar on the graph to display settings for the corresponding frame in the left window and stop the document. [¶]</p> <p>If necessary, adjust the view of the graph: [¶] Select View > Streaming Graph to show which frames cause pauses. This default view displays alternating light and dark gray blocks representing each frame. The side of each block indicates its relative byte size. The first frame stores a symbol's contents, so it is often larger than other frames. [¶] Select View > Frame by Frame Graph to display the size of each frame. This view helps you see which frames contribute to streaming delays. If any frame block extends above the red line in the graph, the Flash Player halts playback until the entire frame downloads. [¶]</p> <p>Close the test window to return to the normal authoring environment. [¶] Once you've set up a test environment incorporating the Bandwidth Profiler, you can open any SWF file directly in test mode. The file opens in a Flash Player window, using the Bandwidth Profiler and other selected viewing options. [¶] For more information on debugging your documents, see "Writing and Debugging Scripts" in ActionScript Reference Guide Help. [¶]</p>

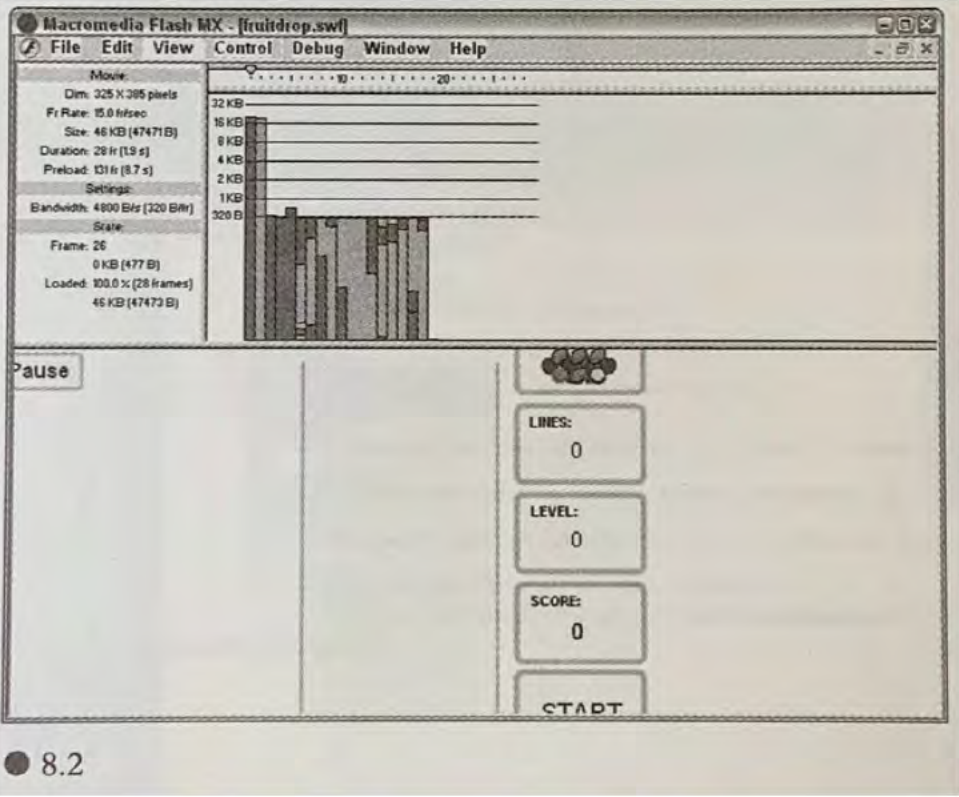
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'811 Claim 1	Reference/Combination
	<p>To generate a report listing the amount of data in the final Flash Player file: [¶] Select File > Publish Settings and click the Flash tab. [¶] Select Generate Size Report. [¶] Click Publish. [¶]</p> <p>Flash generates a text file with the extension .txt. (If the document file is myMovie.fla, the text file is myMovie Report.txt.) The report lists the size of each frame, shape, text, sound, video and ActionScript script by frame.</p> <p>[Flash MX 2004 Using Flash, p. 390]</p> <p>In addition, Flash files are compact, making them perfect for wireless carrier networks, where transfer rates range between 9.6 and 60 kilobytes per second (Kbps). Mobile devices, unlike desktop computers, have limited storage capability, so the small footprint of Flash is ideal.</p> <p>David discloses, via screenshots, the appearance of the Bandwidth Profiler.</p> <p>[David, p. 7]</p>

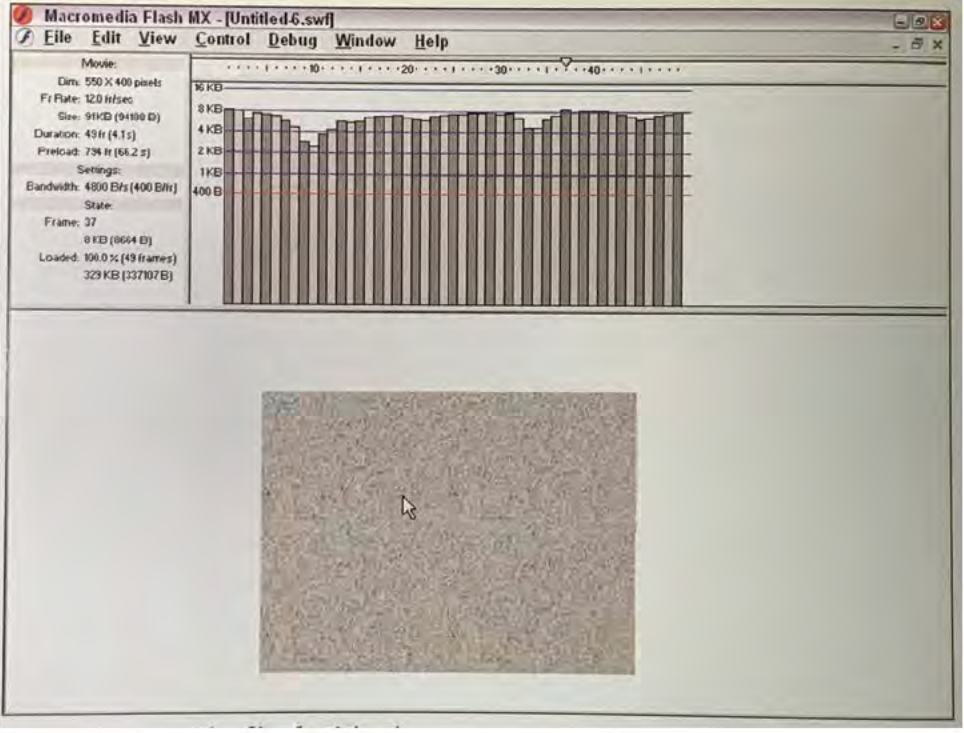
Wapp Tech Limited Partnership et al. v. JPMorgan Chase Bank, N.A., No. 4:23-cv-1137 (E.D. Tex.)

'811 Claim 1	Reference/Combination
	<div><p>● 1.6</p><p>[David, p. 98]</p></div>

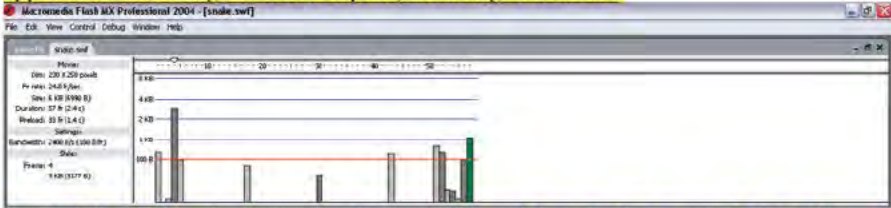
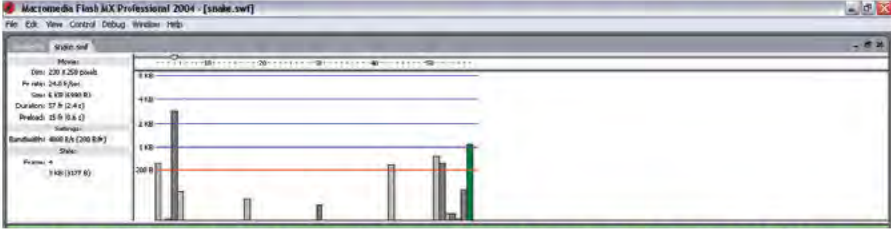
Wapp Tech Limited Partnership et al. v. JPMorgan Chase Bank, N.A., No. 4:23-cv-1137 (E.D. Tex.)

'811 Claim 1	Reference/Combination
	 <p data-bbox="386 1423 1136 1449">[David, #18 of 32 unnumbered pages between pages numbered 192 and 193]</p>

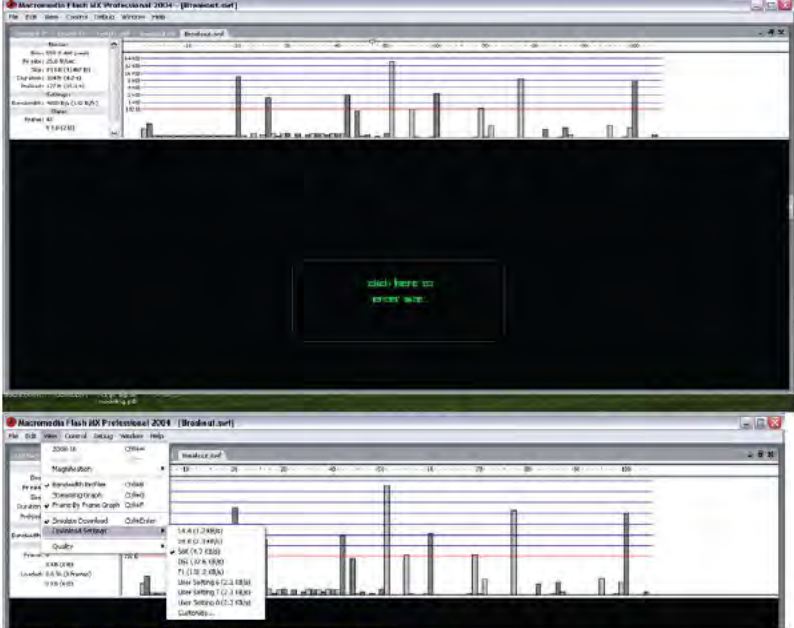
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'811 Claim 1	Reference/Combination
	 <p>The screenshot shows the Macromedia Flash MX Professional 2004 interface. The top menu bar includes File, Edit, View, Control, Debug, Window, and Help. The main workspace is divided into two sections. The top section displays a timeline with a vertical axis on the left labeled 'Movie' and a horizontal axis at the top labeled 'Time' with markers at 10, 20, 30, and 40. The vertical axis has labels for 16 KB, 8 KB, 4 KB, 2 KB, 1 KB, and 400 B. The timeline shows a series of vertical bars representing video frames. The bottom section is a video player showing a grainy, textured image. A mouse cursor is visible over the video player.</p> <p>To the extent this limitation is not explicitly disclosed by the Flash MX Professional 2004 system, it is inherent or would have been obvious to a POSA from the teachings of the Flash MX Professional 2004 system, the knowledge of a POSA, and/or one or more of the references identified in JPMC's Invalidity Contentions.</p>

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’811 Claim 1	Reference/Combination
<p>1[f] monitor utilization of a plurality of resources over time as the application is running;</p>	<p>The Flash MX Professional 2004 system discloses this limitation.</p> <p>For example, the Bandwidth Profiler monitors utilization of a plurality of resources over time as the application is running in the lower pane, including bandwidth.</p>  <p>Bandwidth Profiler simulating a web connection and download at a speed of 28.8 kbps.</p>  <p>Bandwidth Profiler simulating a web connection and download at a speed of 56 kbps.</p> <p>Screenshots above from the Flash MX Professional 2004 emulator show a plurality of network characteristics, including “Bandwidth” and the amount of time needed for “Preload” for snake.swf.</p>

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811 Claim 1	Reference/Combination
	 <p>Bandwidth Profiler simulation options.</p> <p>For example, the Bandwidth Profiler in Flash MX Professional 2004 monitors utilization and/or usage of bandwidth, processor, memory/RAM, and screen, over time as the application is running.</p> <p>[Flash MX 2004 Using Flash, pp. 38–39]</p> <p>The Flash Player attempts to meet the frame rate you set; the actual frame rate during playback</p>

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'811 Claim 1	Reference/Combination
	<p>can vary on different computers. If a document that is downloading reaches a particular frame before the frame's required data has downloaded, the document pauses until the data arrives. [¶]</p> <p>To view downloading performance graphically, you can use the Bandwidth Profiler, which shows how much data is sent for each frame according to the modem speed you specify. The Bandwidth Profiler is divided into two panes. The left pane shows information about the document, the download settings, the state, and streams, if any are included. The right pane shows information about individual frames in the document. [¶]</p> <p>In simulating the downloading speed, Flash uses estimates of typical Internet performance, not the exact modem speed. For example, if you choose to simulate a modem speed of 28.8 Kbps, Flash sets the actual rate to 2.3 Kbps to reflect typical Internet performance. The profiler also compensates for the added compression support for SWF files, which reduces the file size and improves streaming performance. [¶]</p> <p>When external SWF files, GIF and XML files, and variables are streamed into a player by using ActionScript calls such as loadMovie and getUrl, the data flows at the rate set for streaming. The stream rate for the main SWF file is reduced based on the reduction of bandwidth caused by the additional data requests. It's helpful to test your document at each speed you intend to support, and on each computer you intend to support. This helps you ensure that the document doesn't overburden the slowest connection and computer it is designed for. [¶]</p> <p>You can also generate a report of frames that are slowing playback, and then optimize or eliminate some of the content in those frames. See "Optimizing Flash documents" on page 36. [¶]</p> <p>To change the settings for the SWF file created using the Test Movie and Test Scene commands, use File > Publish Settings. See "Publishing Flash documents" on page 281. [¶]</p> <p>To test download performance: [¶] Do one of the following: [¶] Select Control > Test Scene or Control > Test Movie. [¶] If you test a scene or document, Flash publishes the current selection as a SWF file using the settings in the Publish Settings dialog box. (See "Publishing Flash documents" on page 281.) The SWF file opens in a new window and begins playing immediately. [¶] Select File > Open, and select a SWF file. [¶]</p> <p>Select View > Download Settings, and select a download speed to determine the streaming rate</p>

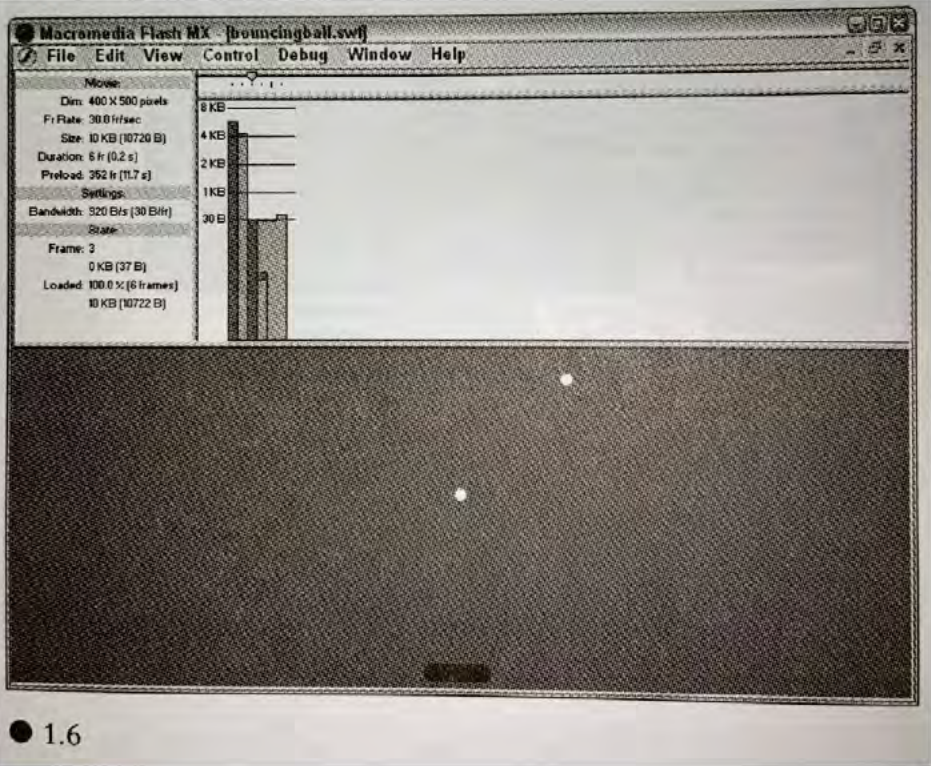
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'811 Claim 1	Reference/Combination
	<p>that Flash simulates: 14.4 Kbps, 28.8 Kbps, 56 Kbps, DSL, T1 or a User Setting. To enter your own User Setting, select Customize. [¶]</p> <p>When viewing the SWF file, select View > Bandwidth Profiler to display a graph of the downloading performance. [¶] The left side of the profiler displays information about the document, its settings, its state, and streams, if any are included in the document. [¶] The right section of the profiler shows the Timeline header and graph. In the graph, each bar represents an individual frame of the document. The size of the bar corresponds to that frame's size in bytes. The red line beneath the Timeline header indicates whether a given frame streams in real time with the current modem speed set in the Control menu. If a bar extends above the red line, the document must wait for that frame to load. [¶]</p> <p>Select View > Simulate Download to turn streaming off or on. [¶] If you turn streaming off, the document starts over without simulating a web connection. [¶]</p> <p>Click a bar on the graph to display settings for the corresponding frame in the left window and stop the document. [¶]</p> <p>If necessary, adjust the view of the graph: [¶] Select View > Streaming Graph to show which frames cause pauses. This default view displays alternating light and dark gray blocks representing each frame. The side of each block indicates its relative byte size. The first frame stores a symbol's contents, so it is often larger than other frames. [¶] Select View > Frame by Frame Graph to display the size of each frame. This view helps you see which frames contribute to streaming delays. If any frame block extends above the red line in the graph, the Flash Player halts playback until the entire frame downloads. [¶]</p> <p>Close the test window to return to the normal authoring environment. [¶] Once you've set up a test environment incorporating the Bandwidth Profiler, you can open any SWF file directly in test mode. The file opens in a Flash Player window, using the Bandwidth Profiler and other selected viewing options. [¶] For more information on debugging your documents, see "Writing and Debugging Scripts" in ActionScript Reference Guide Help. [¶]</p> <p>To generate a report listing the amount of data in the final Flash Player file: [¶] Select File > Publish Settings and click the Flash tab. [¶] Select Generate Size Report. [¶] Click Publish. [¶]</p>

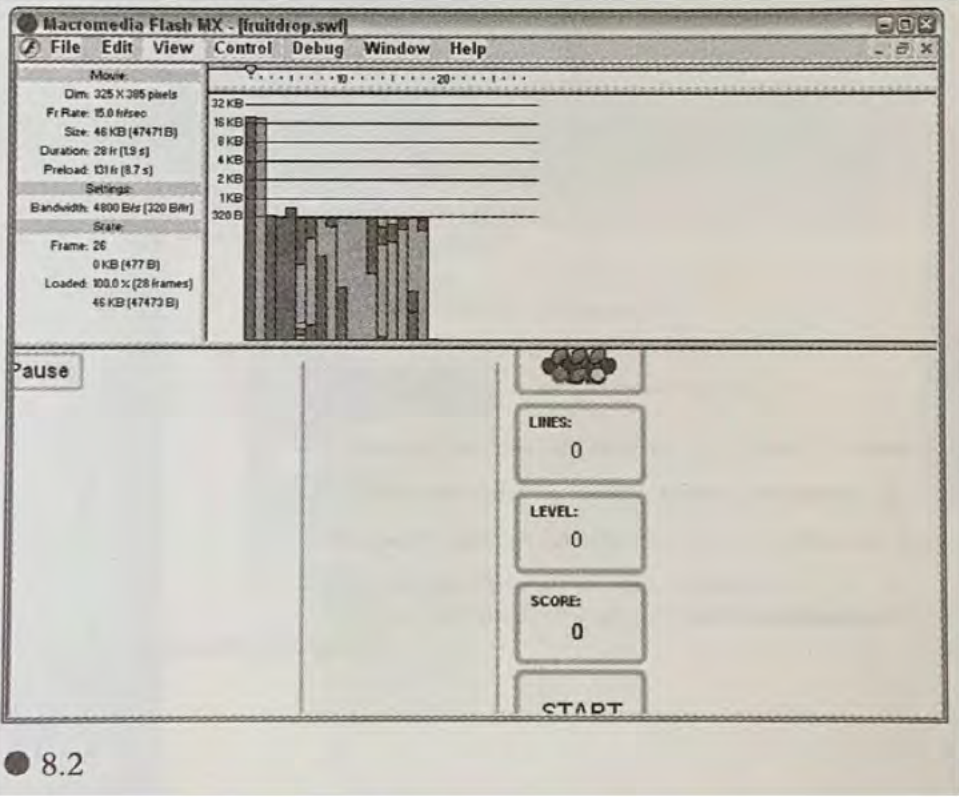
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'811 Claim 1	Reference/Combination
	<p data-bbox="378 632 1468 716">Flash generates a text file with the extension .txt. (If the document file is myMovie fla, the text file is myMovie Report.txt.) The report lists the size of each frame, shape, text, sound, video and ActionScript script by frame.</p> <p data-bbox="378 747 753 772">[Flash MX 2004 Using Flash, p. 390]</p> <p data-bbox="378 777 1442 856">In addition, Flash files are compact, making them perfect for wireless carrier networks, where transfer rates range between 9.6 and 60 kilobytes per second (Kbps). Mobile devices, unlike desktop computers, have limited storage capability, so the small footprint of Flash is ideal.</p> <p data-bbox="378 945 1122 970">David discloses, via screenshots, the appearance of the Bandwidth Profiler.</p> <p data-bbox="378 1001 505 1026">[David, p. 7]</p>

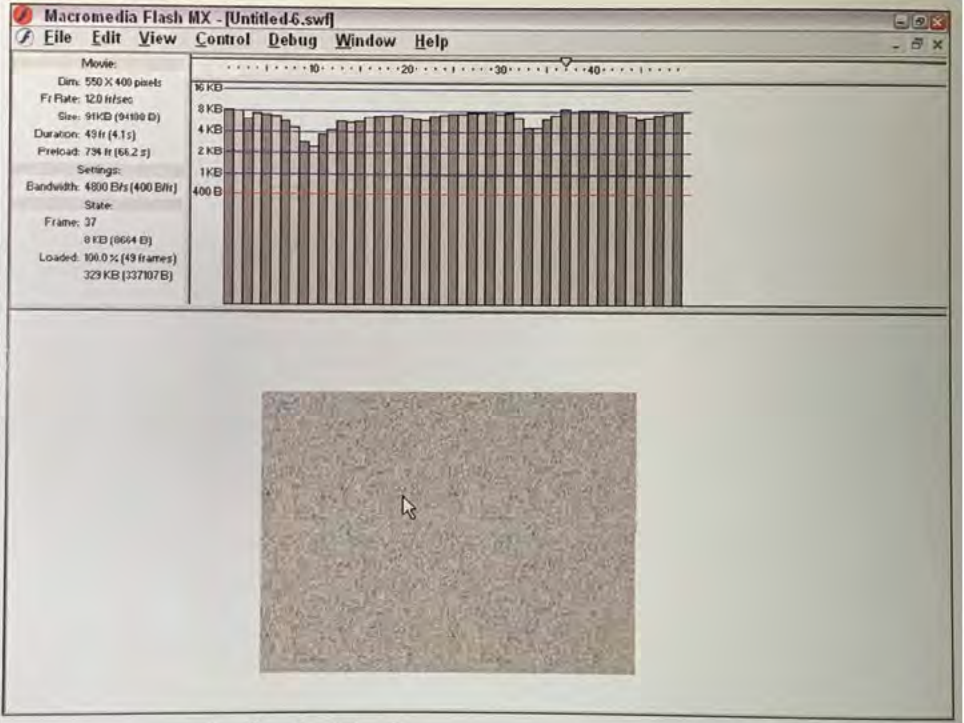
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'811 Claim 1	Reference/Combination
	<div><p>● 1.6</p><p>[David, p. 98]</p></div>

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'811 Claim 1	Reference/Combination
	 <p data-bbox="386 1423 1133 1451">[David, #18 of 32 unnumbered pages between pages numbered 192 and 193]</p>

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'811 Claim 1	Reference/Combination
	 <p>The screenshot shows the Macromedia Flash MX application window titled "Macromedia Flash MX - [Untitled6.swf]". The interface includes a menu bar (File, Edit, View, Control, Debug, Window, Help) and a timeline at the top. On the left, a "Movie" panel displays various properties: Dimensions (550 X 400 pixels), Frame Rate (12.0 fps), Size (91 KB (94100 B)), Duration (49 fr (4.1 s)), Preload (794 fr (68.2 s)), Settings (Bandwidth: 4800 B/s (400 B/fr), State: Frame: 37, 0 KB (0004 B)), and Loaded (100.0 % (49 frames), 329 KB (337807 B)). The main area features a bandwidth profiler graph with a vertical axis from 400 B to 16 KB and a horizontal axis from 0 to 40. The graph shows a series of vertical bars representing bandwidth usage over time. Below the graph is a video player window displaying a textured, brownish-grey image.</p> <p>The Flash Player, used for testing Flash applications and included in the Bandwidth Profiler, monitors processor utilization and frame rate.</p> <p>[<i>Flash MX 2004 Using Flash</i>, p. 286]</p>

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	<p>Select Quality options to determine the trade-off between processing time and appearance, as follows. This option sets the QUALITY parameter's value in the object and embed tags. [¶] Low favors playback speed over appearance and does not use anti-aliasing. [¶]</p> <p>Auto Low emphasizes speed at first but improves appearance whenever possible. Playback begins with anti-aliasing turned off. If Flash Player detects that the processor can handle it, anti-aliasing is turned on. [¶] Auto High emphasizes playback speed and appearance equally at first but sacrifices appearance for playback speed if necessary. Playback begins with anti-aliasing turned on. If the actual frame rate drops below the specified frame rate, anti-aliasing is turned off to improve playback speed. Use this setting to emulate the View > Antialias setting in Flash.</p> <p>[Flash MX 2004 Using Flash, p. 151] The frame rate, the speed at which the animation is played, is measured in number of frames per second. A frame rate that's too slow makes the animation appear to stop and start; a frame rate that's too fast blurs the details of the animation. A frame rate of 12 frames per second (fps) usually gives the best results on the web. QuickTime and AVI movies generally have a frame rate of 12 fps, while the standard motion-picture rate is 24 fps. [¶] The complexity of the animation and the speed of the computer on which the animation is being played affect the smoothness of the playback. Test your animations on a variety of machines to determine optimum frame rates. [¶] Because you specify only one frame rate for the entire Flash document, it's a good idea to set this rate before you begin creating animation. See "Creating or opening a document and setting properties" on page 9.</p> <p>[Flash MX 2004 Using Flash, p. 9] Creating or opening a document and setting properties [¶] You can create a new document or open a previously saved document as you work in Flash. In Windows, you can use the New File button to open a document of the same type as the last document created. [¶]</p> <p>To set the size, frame rate, background color, and other properties of a new or existing document, you use the Document Properties dialog box. You can also use the Property inspector to set properties for an existing document. The Property inspector makes it easy to access and change the most commonly used attributes of a document. For more information on the Property inspector, see "Using panels and the Property inspector" in <i>Getting Started Help</i>.</p>

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	<p>[<i>Flash MX 2004 Using Flash</i>, p. 10] To set properties for a new or existing document in the Document Properties dialog box: [¶] 1 With the document open, select Modify > Document. [¶] The Document Properties dialog box appears. [¶] 2 For Frame Rate, enter the number of animation frames to be displayed every second. For most computer-displayed animations, especially those playing from a website, 8 fps (frames per second) to 12 fps is sufficient (12 fps is the default frame rate).</p> <p>[<i>Flash MX 2004 Using Flash</i>, p. 38] The Flash Player attempts to meet the frame rate you set; the actual frame rate during playback can vary on different computers.</p> <p>[<i>Flash MX 2004 Using Flash</i>, p. 306] (Optional) Specifies the level of anti-aliasing to be used during playback of your application. Because anti-aliasing requires a faster processor to smooth each frame of the SWF file before it is rendered on the viewer's screen, select a value based on whether speed or appearance is your top priority: [¶] Low favors playback speed over appearance and never uses anti-aliasing. [¶]</p> <p>Autolow emphasizes speed at first but improves appearance whenever possible. Playback begins with anti-aliasing turned off. If Flash Player detects that the processor can handle it, anti-aliasing is turned on. [¶]</p> <p>Autohigh emphasizes playback speed and appearance equally at first but sacrifices appearance for playback speed if necessary. Playback begins with anti-aliasing turned on. If the frame rate drops below the specified frame rate, anti-aliasing is turned off to improve playback speed. Use this setting to emulate the Antialias command in Flash (View > Preview Mode > Antialias).</p> <p>[<i>Flash MX 2004 Getting Started with Flash</i>, p. 21] The Timeline status display at the bottom of the Timeline indicates the selected frame number, the current frame rate, and the elapsed time to the current frame. [¶] Note: When an animation is played, the actual frame rate is displayed; this may differ from the document frame rate if the computer can't display the animation quickly enough.</p>

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	<p>[Flash MX Professional 2004 Flash Lite 1.1 Authoring Guidelines, pp. 15–16] Performance optimization ¶ CPU speed in mobile phones varies among models and is typically much slower than the CPU speed in current desktop computers. Therefore, it is extremely important to consider application performance and optimization from the beginning of each project for creating Flash Lite content created for mobile phones. ¶ Note: In Flash MX Professional 2004, you can find tips on optimizing Flash applications. (Select Help > Using Flash -> Search and enter optimizing movies in the Keyword Searchtext box.) ¶ If you follow the simple guidelines described in this document to author your Flash Lite content, you can create rich and compelling content despite CPU limitations. ¶</p> <p>Animation ¶ When creating animated content for a mobile phone, it is important to keep in mind the phone's CPU limitations. The following guidelines can help prevent your Flash Lite content from running slowly: ¶ • If you need to provide intense or complex animation, experiment with changing the quality setting of the content. The default quality setting is Medium. ¶ To change the quality setting in Flash MX Professional 2004, select File > Publish Settings, and select the HTML tab. Select a quality setting from the Quality pop-up menu. ¶ Because changing the quality setting might noticeably affect the visual quality of the Flash Lite content, make sure to thoroughly test the SWF file.</p> <p>[Flash MX Professional 2004 Flash Lite 1.1 Authoring Guidelines, p. 19] Device speed and frames per second ¶ If the project contains static images, it's not likely that the device processor speed will be an issue. The complexity of Flash requires some important trade-offs when developing content for mobile phones. Until mobile phones have faster processors and there are improvements to other internal components, you must make adjustments to provide an experience that does not appear sluggish to users; otherwise, they won't use the application. ¶ Try to avoid full-screen wipes, fades, and animations. Remember that updating many pixels at a time can be slow, depending on the content. The performance of your Flash application depends on the number of open applications, available phone memory, processor speed, and screen resolution.</p> <p>[Flash MX Professional 2004 Flash Lite 1.1 Authoring Guidelines, p. 48] To create a Flash Lite 1.1 compatible SWF file: ¶ 1. In Flash MX Professional 2004, create a new document and name it FlashLiteTest fla. ¶ 2. Select File > Publish Settings, and then the Flash tab. In the Version pop-up menu, select Flash Lite 1.1. Click OK. ¶ 3. From the Property inspector select the Size button, and</p>

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	<p>change your document properties so that width = 240, height = 266, and Frame Rate = 15. Click OK. Make sure to use the appropriate frame rate on the actual devices.</p> <p><i>[Flash MX Professional 2004 Flash Lite 1.1 Authoring Guidelines, p. 57]</i> The development kit includes a variety of sample files (FLA and SWF files) that demonstrate many of the concepts and applications that are described in this document. These examples are included to help you create content for mobile phones. The files include capabilities examples, processor detectors, and data-driven examples. Be sure to view the readme.txt file in the folder associated with each sample file.</p> <p>The Flash Player further monitors memory/RAM utilization, evidenced by for example setting maximum memory sizes, detecting out-of-memory errors and buffer overruns, and determining the memory used and remaining.</p> <p><i>[Flash MX 2004 Using Flash, p. 280]</i> Buffer overrun protection prevents the intentional misuse of external files in a Flash document to overwrite a user’s memory or insert destructive code such as a virus. This prevents a Flash document from reading or writing data outside the document’s designated memory space on a user’s system. Buffer overrun protection is enabled automatically.</p> <p><i>[Flash MX Professional 2004 Flash Lite Authoring Guidelines for the i-mode Service by NTT DoCoMo, p. 23]</i> Set the run-time memory available to Flash Lite movies running in the i-mode HTML simulator.</p> <p><i>[Flash MX Professional 2004 Flash Lite Authoring Guidelines for the i-mode Service by NTT DoCoMo, pp. 41 – 42]</i> This appendix lists the possible information, warning, and error messages you might encounter when creating movies for Flash Lite for i-mode. [...] SWFS033 [¶] Not enough memory to perform operation. [¶] The Flash player was unable to get enough memory to finish the operation</p>

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	<p data-bbox="378 604 1105 632"><i>[Flash MX Professional 2004 Flash Lite 1.1 Authoring Guidelines, p. 33]</i></p> <p data-bbox="378 632 1414 716">The GetFreePlayerMemory() function returns the amount of memory, in kilobytes, currently available to Flash Lite. [...] The GetTotalPlayerMemory() function returns the total amount of memory, in kilobytes, allocated to Flash Lite.</p> <p data-bbox="378 800 1458 856">Moreover, concerns about mobile devices’ limited CPU, memory, and network speeds pervade the Flash MX Professional 2004 manuals’ discussions of developing Flash content for mobile devices.</p> <p data-bbox="378 888 751 915"><i>[Flash MX 2004 Using Flash, p. 390]</i></p> <p data-bbox="378 915 1438 999">In addition, Flash files are compact, making them perfect for wireless carrier networks, where transfer rates range between 9.6 and 60 kilobytes per second (Kbps). Mobile devices, unlike desktop computers, have limited storage capability, so the small footprint of Flash is ideal.</p> <p data-bbox="378 1031 956 1058"><i>[Flash MX Professional 2004 Flash Lite User Guide, p. 5]</i></p> <p data-bbox="378 1058 1458 1171">Macromedia has created a new Flash Player version, called Macromedia® Flash™ Lite, that runs on a new class of consumer mobile devices. This format is designed to run optimally on devices with limited resources (memory, processor speed, display area). [...] With Macromedia Flash MX Professional 2004, you can author, preview, publish, and validate content for Flash Lite.</p> <p data-bbox="378 1203 1430 1257"><i>[Flash MX Professional 2004 Flash Lite Authoring Guidelines for the i-mode Service by NTT DoCoMo, p. 10]</i></p> <p data-bbox="378 1257 1451 1451">There are limitations on file size and run-time memory usage for Flash Lite movies running on i-mode phones. There is a prescribed limit on how large a web page can be, whether it includes Flash Lite movies or not. For 505i phones, this limit is 20KB. Full details can be found at the DoCoMo website (see Appendix D, “References,” on page 47). This limit applies to an i-mode page’s HTML, SWF content, and all graphic images combined. Web pages larger than this limit cannot be downloaded to an i-mode phone and no error message appears. This limitation also applies to Flash Lite movies played directly in the browser without being embedded in an i-mode compatible HTML file. [¶]</p>

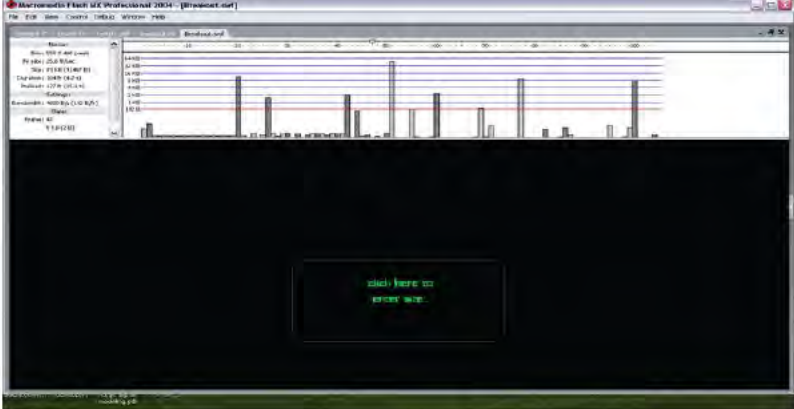
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	<p>The run-time memory available to Flash Lite movies running on i-mode phones is limited and may vary from model to model. Generally, for the 505i phones, this limit is not less than 200KB. Because Flash MX Professional 2004 does not provide a mechanism for checking a phone's run-time memory consumption, Macromedia strongly recommends that you test all content on actual i-mode phones.</p> <p><i>[Flash MX Professional 2004 Flash Lite Authoring Guidelines for the i-mode Service by NTT DoCoMo, p. 11]</i></p> <p>CPU speed in i-mode phones varies from model to model, and is typically much slower than current desktop computers. Therefore, it is extremely important to consider movie performance and optimization from the beginning of each project. The optimization recommendations for creating any Flash movie also apply to Flash Lite movies created for i-mode phones. For the latter, their importance is amplified. [¶] Note: In Flash MX Professional 2004, you can find tips on optimizing Flash movies—select Help > Using Flash -> Search and enter optimizing movies in the keyword search text box. [¶] If you follow some simple guidelines, as described in this document, to author your movies, you can create rich and compelling content despite CPU limitations.</p> <p><i>[Flash MX Professional 2004 Flash Lite 1.1 Authoring Guidelines, p. 17]</i></p> <p>Flash Lite generally uses vector graphics to define content, which can tax a phone's CPU when rendering complex graphics and animations. In general, the more vectors that are manipulated on the Stage, the more CPU power is required. This is also true for Flash movies delivered on desktop computers. However, a mobile phone is far less powerful than desktop computer, so you should avoid taxing the CPU. [¶]</p> <p>When creating content for mobile phones, it is sometimes better to use bitmaps instead of vectors because they require less CPU power to animate. For example, a road map of a large city would have too many complex shapes to scroll and animate well on a mobile phone if it were created as a vector graphic; a bitmap would work much better. [¶]</p> <p>Using bitmaps produces larger files than using vector images, so take care during development to find the right balance of CPU versus file size and runtime memory requirements. Because of mobile phones' smaller screens, slower data transmission speeds, limited memory, and slower CPU speeds, you should take extra care in planning and testing.</p>

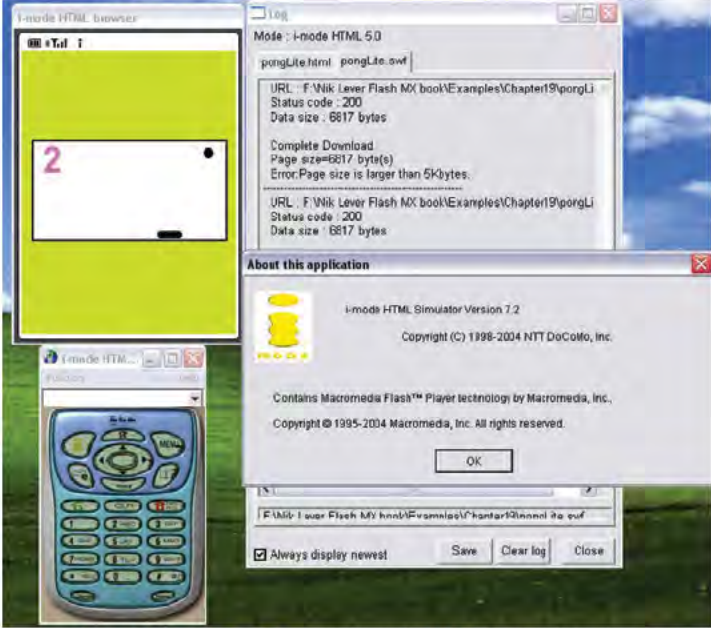
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	<p>[Flash MX Professional 2004 Flash Lite 1.1 Authoring Guidelines, p. 17] Device speed and frames per second [¶] If the project contains static images, it's not likely that the device processor speed will be an issue. The complexity of Flash requires some important trade-offs when developing content for mobile phones. Until mobile phones have faster processors and there are improvements to other internal components, you must make adjustments to provide an experience that does not appear sluggish to users; otherwise, they won't use the application. [¶] Try to avoid full-screen wipes, fades, and animations. Remember that updating many pixels at a time can be slow, depending on the content. The performance of your Flash application depends on the number of open applications, available phone memory, processor speed, and screen resolution.</p> <p>To the extent this limitation is not explicitly disclosed by the Flash MX Professional 2004 system, it is inherent or would have been obvious to a POSA from the teachings of the Flash MX Professional 2004 system, the knowledge of a POSA, and/or one or more of the references identified in JPMC's Invalidity Contentions.</p>
<p>1[g] display simultaneously two or more graphical images of the application's resource utilization, wherein each graphical image relates to a different resource;</p>	<p>The Flash MX Professional 2004 system discloses this limitation.</p> <p>For example, the Bandwidth Profiler displays simultaneously two or more graphical images of the application's resource utilization, wherein each graphical image relates to a different resource.</p>

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	 <p>The screenshot displays the Bandwidth Profiler interface. The top section features a bar chart with a vertical axis ranging from 0 to 1000. The chart shows multiple bars of varying heights, representing network usage over time. Below the chart, there is a dark rectangular area, likely representing screen usage. The software's title bar and menu options are visible at the top of the window.</p> <p>Screenshot of Bandwidth Profiler simultaneously displaying screen usage and network usage.</p>

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	 <p>Screenshot of NTT DoCoMo, Inc. i-mode HTML Simulator in a separate display showing screen and network usage. It can display simultaneously with the Bandwidth Profiler.</p> <p>For example, the Bandwidth Profiler in Flash MX Professional 2004 displays simultaneously a bar chart of the Flash application's bandwidth utilization and a Flash Player window of the Flash application's screen utilization as is running. Each relates to a different resource.</p>

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	<p data-bbox="380 606 786 632"><i>[Flash MX 2004 Using Flash</i>, pp. 38–39]</p> <p data-bbox="380 634 1414 716">The Flash Player attempts to meet the frame rate you set; the actual frame rate during playback can vary on different computers. If a document that is downloading reaches a particular frame before the frame's required data has downloaded, the document pauses until the data arrives. [¶]</p> <p data-bbox="380 745 1463 856">To view downloading performance graphically, you can use the Bandwidth Profiler, which shows how much data is sent for each frame according to the modem speed you specify. The Bandwidth Profiler is divided into two panes. The left pane shows information about the document, the download settings, the state, and streams, if any are included. The right pane shows information about individual frames in the document. [¶]</p> <p data-bbox="380 886 1463 997">In simulating the downloading speed, Flash uses estimates of typical Internet performance, not the exact modem speed. For example, if you choose to simulate a modem speed of 28.8 Kbps, Flash sets the actual rate to 2.3 Kbps to reflect typical Internet performance. The profiler also compensates for the added compression support for SWF files, which reduces the file size and improves streaming performance. [¶]</p> <p data-bbox="380 1026 1463 1194">When external SWF files, GIF and XML files, and variables are streamed into a player by using ActionScript calls such as loadMovie and getUrl, the data flows at the rate set for streaming. The stream rate for the main SWF file is reduced based on the reduction of bandwidth caused by the additional data requests. It's helpful to test your document at each speed you intend to support, and on each computer you intend to support. This helps you ensure that the document doesn't overburden the slowest connection and computer it is designed for. [¶]</p> <p data-bbox="380 1224 1442 1281">You can also generate a report of frames that are slowing playback, and then optimize or eliminate some of the content in those frames. See "Optimizing Flash documents" on page 36. [¶]</p> <p data-bbox="380 1310 1442 1367">To change the settings for the SWF file created using the Test Movie and Test Scene commands, use File > Publish Settings. See "Publishing Flash documents" on page 281. [¶]</p> <p data-bbox="380 1396 1463 1503">To test download performance: [¶] Do one of the following: [¶] Select Control > Test Scene or Control > Test Movie. [¶] If you test a scene or document, Flash publishes the current selection as a SWF file using the settings in the Publish Settings dialog box. (See "Publishing Flash documents" on page 281.) The SWF file opens in a new window and begins playing immediately. [¶] Select File > Open, and select a SWF file. [¶]</p>

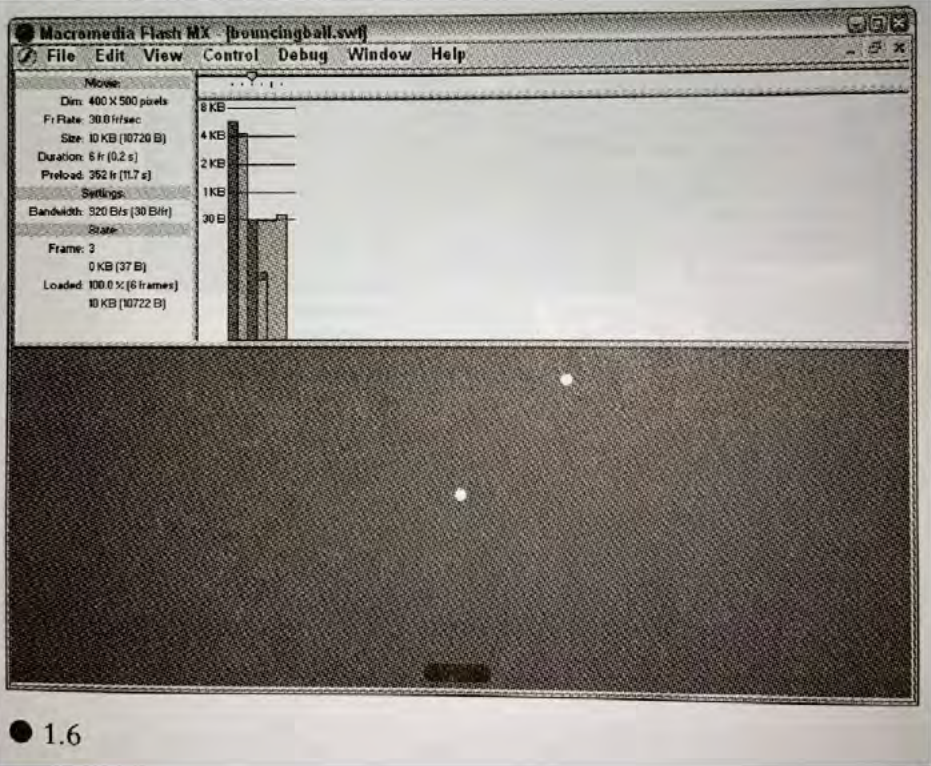
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	<p>Select View > Download Settings, and select a download speed to determine the streaming rate that Flash simulates: 14.4 Kbps, 28.8 Kbps, 56 Kbps, DSL, T1 or a User Setting. To enter your own User Setting, select Customize. [¶]</p> <p>When viewing the SWF file, select View > Bandwidth Profiler to display a graph of the downloading performance. [¶] The left side of the profiler displays information about the document, its settings, its state, and streams, if any are included in the document. [¶] The right section of the profiler shows the Timeline header and graph. In the graph, each bar represents an individual frame of the document. The size of the bar corresponds to that frame's size in bytes. The red line beneath the Timeline header indicates whether a given frame streams in real time with the current modem speed set in the Control menu. If a bar extends above the red line, the document must wait for that frame to load. [¶]</p> <p>Select View > Simulate Download to turn streaming off or on. [¶] If you turn streaming off, the document starts over without simulating a web connection. [¶]</p> <p>Click a bar on the graph to display settings for the corresponding frame in the left window and stop the document. [¶]</p> <p>If necessary, adjust the view of the graph: [¶] Select View > Streaming Graph to show which frames cause pauses. This default view displays alternating light and dark gray blocks representing each frame. The side of each block indicates its relative byte size. The first frame stores a symbol's contents, so it is often larger than other frames. [¶] Select View > Frame by Frame Graph to display the size of each frame. This view helps you see which frames contribute to streaming delays. If any frame block extends above the red line in the graph, the Flash Player halts playback until the entire frame downloads. [¶]</p> <p>Close the test window to return to the normal authoring environment. [¶] Once you've set up a test environment incorporating the Bandwidth Profiler, you can open any SWF file directly in test mode. The file opens in a Flash Player window, using the Bandwidth Profiler and other selected viewing options. [¶] For more information on debugging your documents, see "Writing and Debugging Scripts" in ActionScript Reference Guide Help. [¶]</p>

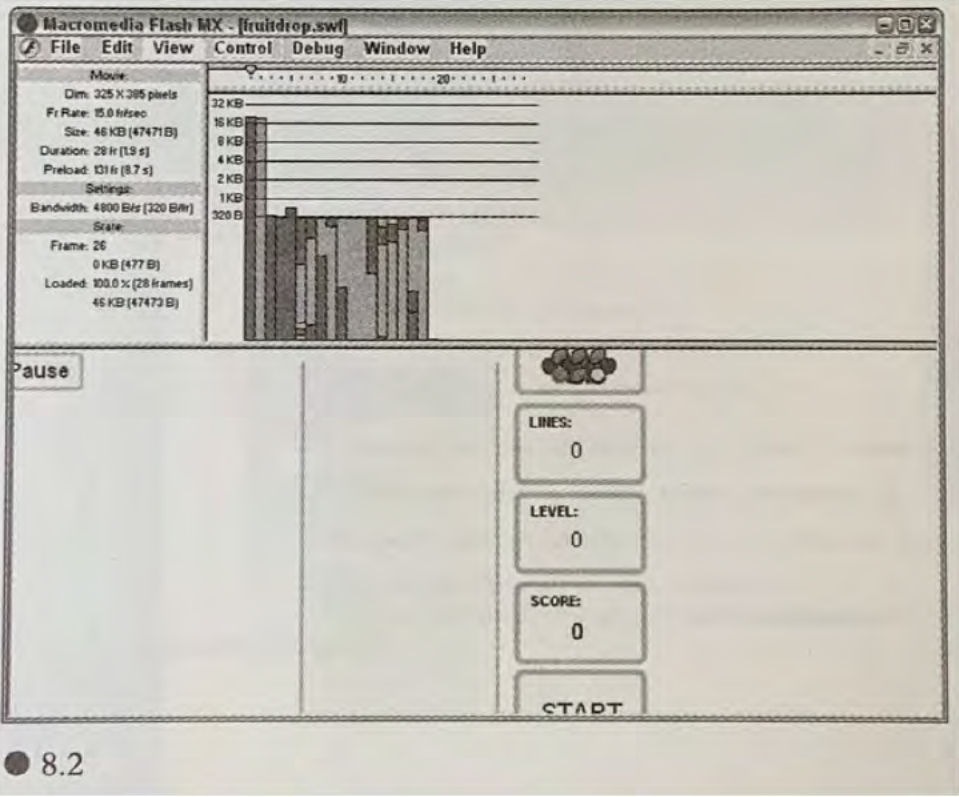
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	<p>To generate a report listing the amount of data in the final Flash Player file: [¶] Select File > Publish Settings and click the Flash tab. [¶] Select Generate Size Report. [¶] Click Publish. [¶]</p> <p>Flash generates a text file with the extension .txt. (If the document file is myMovie.fla, the text file is myMovie Report.txt.) The report lists the size of each frame, shape, text, sound, video and ActionScript script by frame.</p> <p>[Flash MX 2004 Using Flash, p. 390]</p> <p>In addition, Flash files are compact, making them perfect for wireless carrier networks, where transfer rates range between 9.6 and 60 kilobytes per second (Kbps). Mobile devices, unlike desktop computers, have limited storage capability, so the small footprint of Flash is ideal.</p> <p>David discloses, via screenshots, the appearance of the Bandwidth Profiler.</p> <p>[David, p. 7]</p>

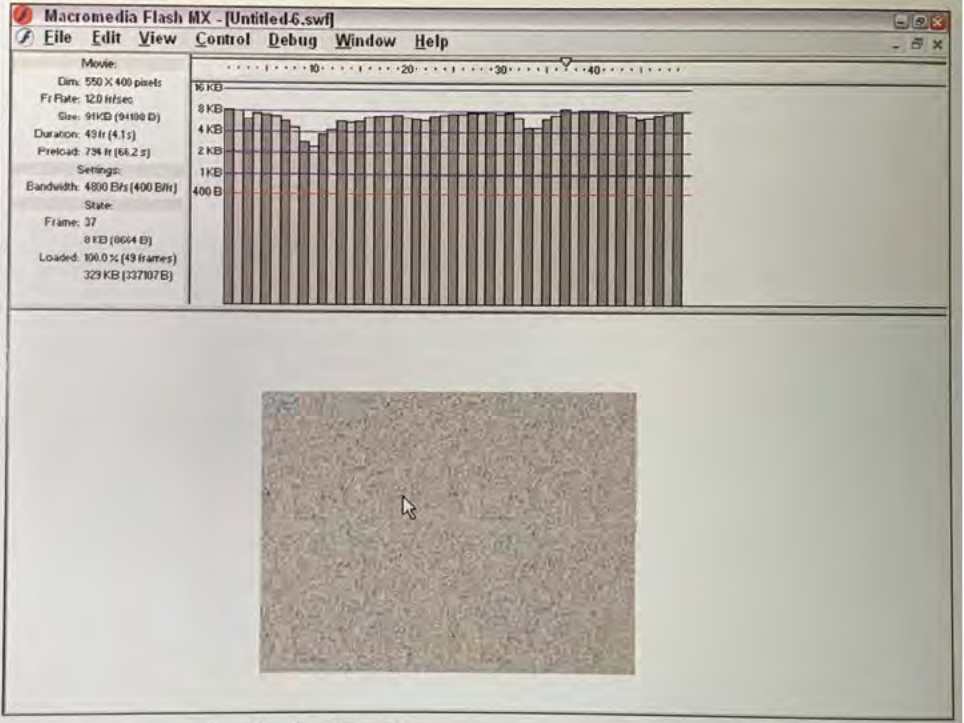
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	<div><p>● 1.6</p><p>[David, p. 98]</p></div>

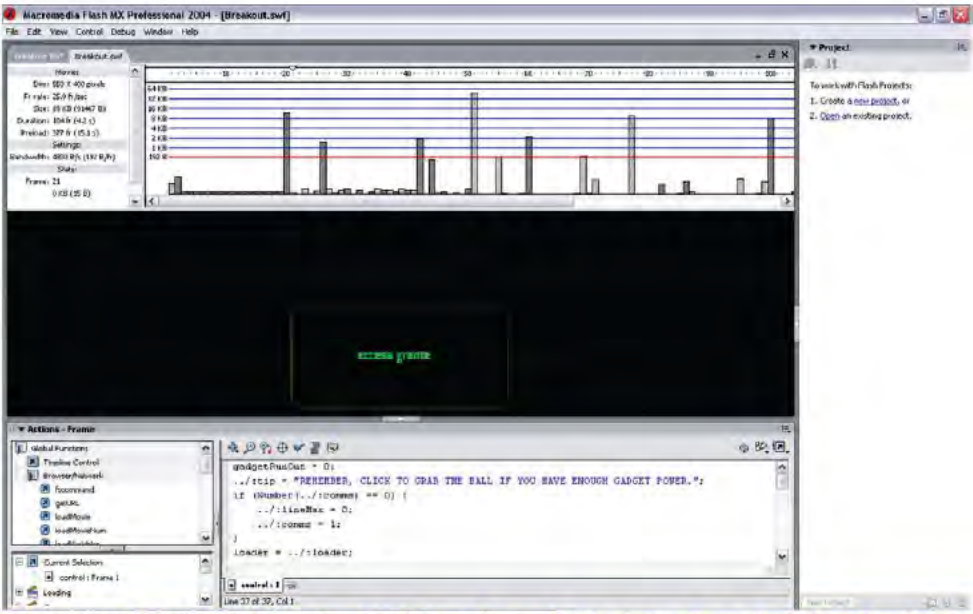
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	 <p data-bbox="386 1423 1136 1451">[David, #18 of 32 unnumbered pages between pages numbered 192 and 193]</p>

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	 <p>The screenshot shows the Macromedia Flash MX Professional 2004 interface. The top menu bar includes File, Edit, View, Control, Debug, Window, and Help. Below the menu is a timeline with a playhead at 40 seconds. The left panel displays movie properties: Dimensions (550 X 400 pixels), Frame Rate (12.0 fps), Size (91 KB), Duration (4.1 s), Preload (73% at 68.2 s), Settings (Bandwidth: 4800 B/s, State: Frame: 37, 0 KB), and Loaded (100.0% (49 frames), 329 KB). The main area shows a video player with a textured, noisy image and a mouse cursor.</p> <p>To the extent this limitation is not explicitly disclosed by the Flash MX Professional 2004 system, it is inherent or would have been obvious to a POSA from the teachings of the Flash MX Professional 2004 system, the knowledge of a POSA, and/or one or more of the references identified in JPMC's Invalidity Contentions.</p>

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<p>1[h] correspond the utilization of a specific displayed resource at a given time with one or more functions of the application responsible for that utilization.</p>	<p>The Flash MX Professional 2004 system discloses this limitation.</p>  <p>Screenshot of Flash MX Professional 2004 interface with "Actions – Frame" window showing the state of the Flash application at frame 21, including an ActionScript script, and indicating the use of bandwidth per frame of the application.</p>

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	<p>For example, the Bandwidth Profiler in Flash MX Professional 2004 corresponds the utilization of the displayed bandwidth at a frame (a given time) of the Flash application with the ActionScript, symbols, function calls, and graphical assets (functions of the application) responsible for that utilization.</p> <p>[<i>Flash MX 2004 Using Flash</i>, pp. 38–39]</p> <p>The Flash Player attempts to meet the frame rate you set; the actual frame rate during playback can vary on different computers. If a document that is downloading reaches a particular frame before the frame's required data has downloaded, the document pauses until the data arrives. [¶]</p> <p>To view downloading performance graphically, you can use the Bandwidth Profiler, which shows how much data is sent for each frame according to the modem speed you specify. The Bandwidth Profiler is divided into two panes. The left pane shows information about the document, the download settings, the state, and streams, if any are included. The right pane shows information about individual frames in the document. [¶]</p> <p>In simulating the downloading speed, Flash uses estimates of typical Internet performance, not the exact modem speed. For example, if you choose to simulate a modem speed of 28.8 Kbps, Flash sets the actual rate to 2.3 Kbps to reflect typical Internet performance. The profiler also compensates for the added compression support for SWF files, which reduces the file size and improves streaming performance. [¶]</p> <p>When external SWF files, GIF and XML files, and variables are streamed into a player by using ActionScript calls such as loadMovie and getUrl, the data flows at the rate set for streaming. The stream rate for the main SWF file is reduced based on the reduction of bandwidth caused by the additional data requests. It's helpful to test your document at each speed you intend to support, and on each computer you intend to support. This helps you ensure that the document doesn't overburden the slowest connection and computer it is designed for. [¶]</p> <p>You can also generate a report of frames that are slowing playback, and then optimize or eliminate some of the content in those frames. See "Optimizing Flash documents" on page 36. [¶]</p> <p>To change the settings for the SWF file created using the Test Movie and Test Scene commands, use File > Publish Settings. See "Publishing Flash documents" on page 281. [¶]</p>

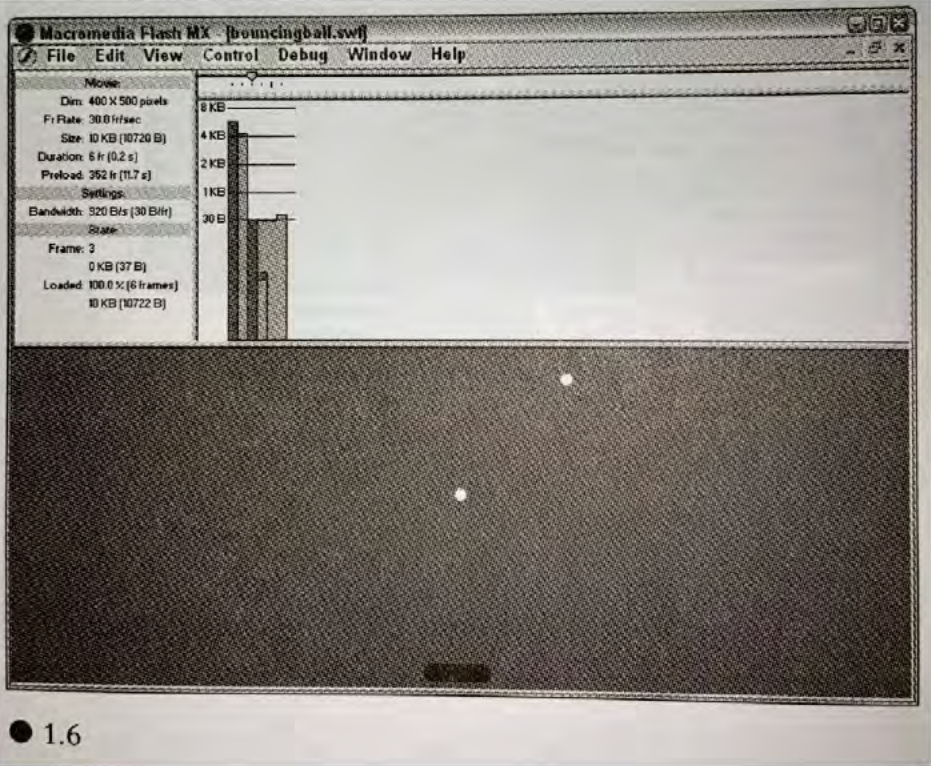
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	<p>To test download performance: [¶] Do one of the following: [¶] Select Control > Test Scene or Control > Test Movie. [¶] If you test a scene or document, Flash publishes the current selection as a SWF file using the settings in the Publish Settings dialog box. (See “Publishing Flash documents” on page 281.) The SWF file opens in a new window and begins playing immediately. [¶] Select File > Open, and select a SWF file. [¶]</p> <p>Select View > Download Settings, and select a download speed to determine the streaming rate that Flash simulates: 14.4 Kbps, 28.8 Kbps, 56 Kbps, DSL, T1 or a User Setting. To enter your own User Setting, select Customize. [¶]</p> <p>When viewing the SWF file, select View > Bandwidth Profiler to display a graph of the downloading performance. [¶] The left side of the profiler displays information about the document, its settings, its state, and streams, if any are included in the document. [¶] The right section of the profiler shows the Timeline header and graph. In the graph, each bar represents an individual frame of the document. The size of the bar corresponds to that frame’s size in bytes. The red line beneath the Timeline header indicates whether a given frame streams in real time with the current modem speed set in the Control menu. If a bar extends above the red line, the document must wait for that frame to load. [¶]</p> <p>Select View > Simulate Download to turn streaming off or on. [¶] If you turn streaming off, the document starts over without simulating a web connection. [¶]</p> <p>Click a bar on the graph to display settings for the corresponding frame in the left window and stop the document. [¶]</p> <p>If necessary, adjust the view of the graph: [¶] Select View > Streaming Graph to show which frames cause pauses. This default view displays alternating light and dark gray blocks representing each frame. The side of each block indicates its relative byte size. The first frame stores a symbol’s contents, so it is often larger than other frames. [¶] Select View > Frame by Frame Graph to display the size of each frame. This view helps you see which frames contribute to streaming delays. If any frame block extends above the red line in the graph, the Flash Player halts playback until the entire frame downloads. [¶]</p> <p>Close the test window to return to the normal authoring environment. [¶] Once you’ve set up a test environment incorporating the Bandwidth Profiler, you can open any SWF file directly in test mode. The file</p>

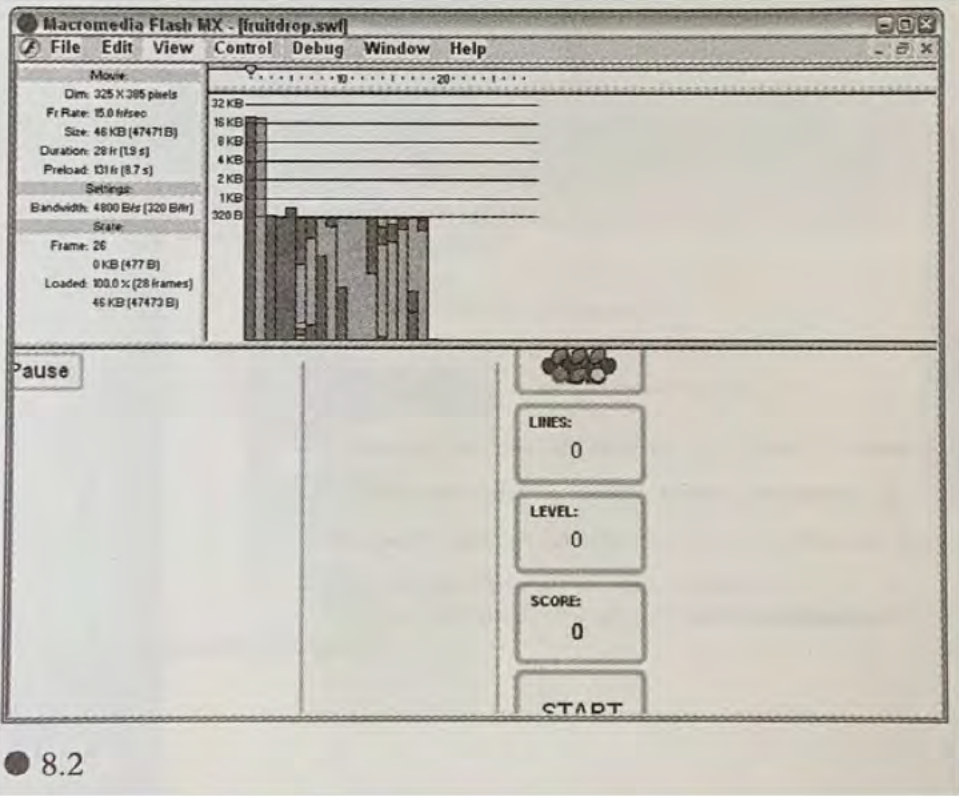
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	<p>opens in a Flash Player window, using the Bandwidth Profiler and other selected viewing options. [¶] For more information on debugging your documents, see “Writing and Debugging Scripts” in ActionScript Reference Guide Help. [¶]</p> <p>To generate a report listing the amount of data in the final Flash Player file: [¶] Select File > Publish Settings and click the Flash tab. [¶] Select Generate Size Report. [¶] Click Publish. [¶]</p> <p>Flash generates a text file with the extension .txt. (If the document file is myMovie fla, the text file is myMovie Report.txt.) The report lists the size of each frame, shape, text, sound, video and ActionScript script by frame.</p> <p>[Flash MX 2004 Using Flash, p. 390]</p> <p>In addition, Flash files are compact, making them perfect for wireless carrier networks, where transfer rates range between 9.6 and 60 kilobytes per second (Kbps). Mobile devices, unlike desktop computers, have limited storage capability, so the small footprint of Flash is ideal.</p> <p>David discloses, via screenshots, the appearance of the Bandwidth Profiler.</p> <p>[David, p. 7]</p>

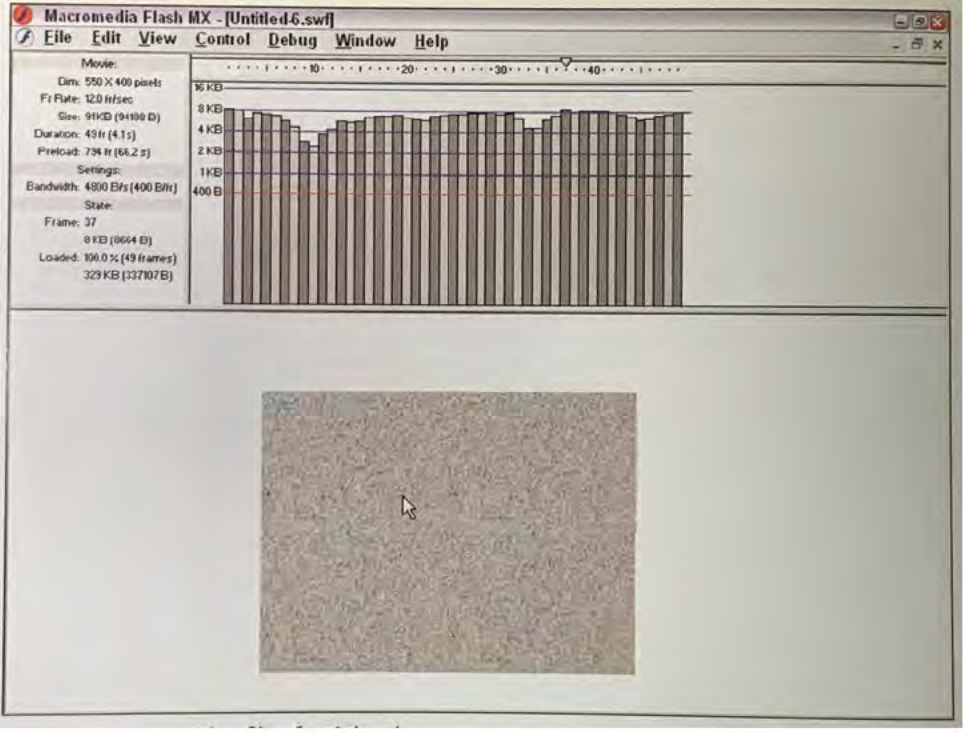
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	<div><p>● 1.6</p><p>[David, p. 98]</p></div>

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	<div></div> <p>8.2</p> <p>[David, #18 of 32 unnumbered pages between pages numbered 192 and 193]</p>

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	 <p>The screenshot shows the Macromedia Flash MX Professional 2004 interface. The top menu bar includes File, Edit, View, Control, Debug, Window, and Help. Below the menu is a timeline with a playhead at 40 seconds. The left panel displays movie properties: Dimensions: 550 X 400 pixels, Frame Rate: 12.0 fps, Size: 911 KB (94100 B), Duration: 49 fr (4.1 s), Preload: 734 fr (68.2 s), Settings: Bandwidth: 4800 B/s (400 B/fr), State: Frame: 37, 0 KB (0664 B), Loaded: 100.0 % (49 frames), 329 KB (327707 B). The main canvas shows a video player with a textured, grainy video frame and a mouse cursor pointing at it.</p> <p>To the extent this limitation is not explicitly disclosed by the Flash MX Professional 2004 system, it is inherent or would have been obvious to a POSA from the teachings of the Flash MX Professional 2004 system, the knowledge of a POSA, and/or one or more of the references identified in JPMC's Invalidity Contentions.</p>

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*811 Claim 2	Reference/Combination
2[a] The medium of claim 1, wherein the instructions initiate transmission of the application that is being developed to one or more physical versions of a mobile device corresponding to the selected mobile device model.	<p>The Flash MX Professional 2004 system discloses this limitation.</p> <p>For example, Flash MX Professional 2004 initiates transmission of the Flash application that is being developed to the physical version of the mobile device, such as an actual 505i phone, using desktop-to-phone synchronization software.</p> <p>[Flash MX Professional 2004 Flash Lite 1.1 Authoring Guidelines, p. 49] Select File > Publish to save the SWF file as FlashLiteTest.swf. ¶ In the mobile phone web browser or from a desktop that can transfer a file using desktop-to-phone synchronization software, transfer the file to the mobile phone and verify that it works correctly.</p> <p>[Flash MX Professional 2004 Flash Lite 1.1 Authoring Guidelines, p. 51] Test your Macromedia Flash Lite 1.1 SWF content frequently on actual mobile phones. This step may seem obvious, but it is often overlooked. It is especially important when you develop Flash Lite 1.1 SWF files for mobile phones. No matter how much phone emulation you do, the final delivery remains the most important part of the development cycle. Emulation is helpful for much of the testing, but it is no substitute for testing on actual mobile phones.</p> <p>[Flash MX Professional 2004 Flash Lite Authoring Guidelines for the i-mode Service by NTT DoCoMo, p. 21] Test your Flash Lite movies frequently on actual 505i phones. This advice may sound obvious, but this step is often overlooked and is especially important for developing Flash Lite movies for i-mode phones. No matter how much phone emulation a developer does, the final delivery remains the most important step in the development cycle. Emulation is helpful for much of the testing, but it is no substitute for testing on actual 505i phones. ¶</p> <p>For basic information on how to use Flash MX Professional 2004 to author and preview Flash Lite movies created for playing on phones, please refer to the Macromedia Flash MX Professional 2004 User Guide for Flash Lite . ¶ You should use the following to test your Flash Lite movie for i-mode phones:</p> <ul style="list-style-type: none"> • The test movie Flash Lite Player (invoked during the Test Movie process) • The stand-alone Flash Lite simulator

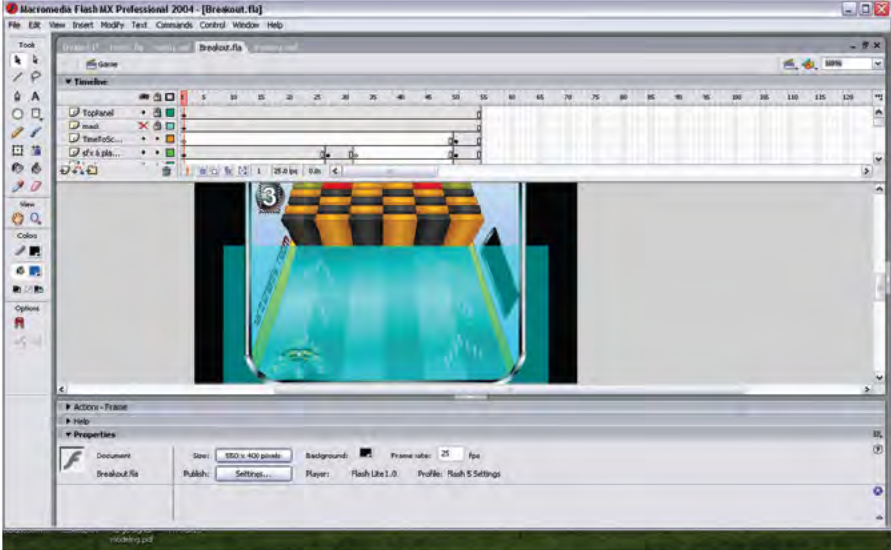
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	<ul style="list-style-type: none">• The i-mode HTML Simulator from DoCoMo• Flash Lite on the manufacturer's i-mode phone <p>To the extent this limitation is not explicitly disclosed by the Flash MX Professional 2004 system, it is inherent or would have been obvious to a POSA from the teachings of the Flash MX Professional 2004 system, the knowledge of a POSA, and/or one or more of the references identified in JPMC's Invalidity Contentions.</p>

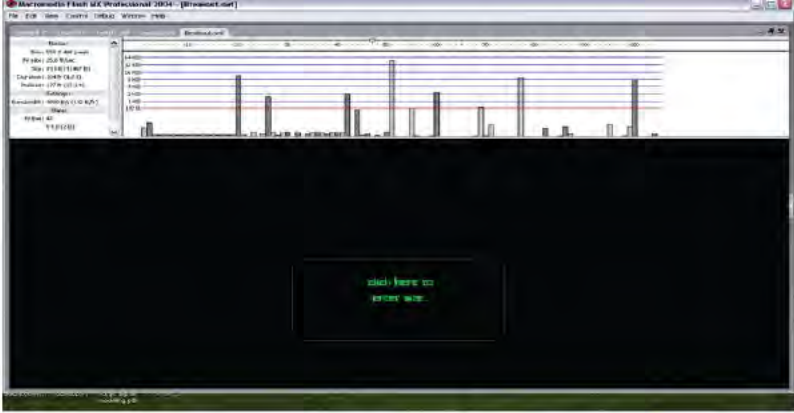
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<p>4[a] The medium of claim 2, wherein the one or more characteristics indicative of the mobile device corresponding to the selected mobile device model include at least one of processor type, processor speed, storage access speed, RAM size, storage size, display width, display height, pixel depth, processor availability, RAM availability or storage availability.</p>	<p>The Flash MX Professional 2004 system discloses this limitation.</p>  <p>Screenshot of Flash MX Professional 2004 showing simulation speed is set to 12 fps (frames per second).</p>

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	<div data-bbox="378 604 1263 1150">A screenshot of the Macromedia Flash MX Professional 2004 software interface. The main workspace displays a game simulation titled 'Breakout.fla'. The simulation features a green paddle at the bottom, a ball in the center, and a row of colorful bricks at the top. The interface includes a timeline at the top, a toolbar on the left, and a Properties panel at the bottom. The Properties panel shows the document size as 550 x 400 pixels and the frame rate as 25 fps. The status bar at the bottom indicates 'Working.pdf'.</div> <p data-bbox="378 1155 1295 1186">Screenshot showing simulation speed is set to 25 fps, and screen size set to 550 x 400 pixels.</p>

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	 <p>For example, the Bandwidth Profiler in Flash MX Professional 2004 simulates document/specified frame rate (processor speed), processor availability, and actual frame rate (processor availability).</p> <p>[<i>Flash MX 2004 Using Flash</i>, p. 286]</p> <p>Select Quality options to determine the trade-off between processing time and appearance, as follows. This option sets the QUALITY parameter's value in the object and embed tags. [¶] Low favors playback speed over appearance and does not use anti-aliasing. [¶]</p> <p>Auto Low emphasizes speed at first but improves appearance whenever possible. Playback begins with anti-aliasing turned off. If Flash Player detects that the processor can handle it, anti-aliasing is turned on. [¶] Auto High emphasizes playback speed and appearance equally at first but sacrifices appearance for playback speed if necessary. Playback begins with anti-aliasing turned on. If the actual frame rate drops below the specified frame rate, anti-aliasing is turned off to improve playback speed. Use this setting to emulate the View > Antialias setting in Flash.</p>

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	<p data-bbox="378 604 751 632"><i>[Flash MX 2004 Using Flash, p. 151]</i></p> <p data-bbox="378 632 1455 884">The frame rate, the speed at which the animation is played, is measured in number of frames per second. A frame rate that's too slow makes the animation appear to stop and start; a frame rate that's too fast blurs the details of the animation. A frame rate of 12 frames per second (fps) usually gives the best results on the web. QuickTime and AVI movies generally have a frame rate of 12 fps, while the standard motion-picture rate is 24 fps. ¶ The complexity of the animation and the speed of the computer on which the animation is being played affect the smoothness of the playback. Test your animations on a variety of machines to determine optimum frame rates. ¶ Because you specify only one frame rate for the entire Flash document, it's a good idea to set this rate before you begin creating animation. See "Creating or opening a document and setting properties" on page 9.</p> <p data-bbox="378 915 727 942"><i>[Flash MX 2004 Using Flash, p. 9]</i></p> <p data-bbox="378 942 1425 1026">Creating or opening a document and setting properties ¶ You can create a new document or open a previously saved document as you work in Flash. In Windows, you can use the New File button to open a document of the same type as the last document created. ¶</p> <p data-bbox="378 1058 1463 1194">To set the size, frame rate, background color, and other properties of a new or existing document, you use the Document Properties dialog box. You can also use the Property inspector to set properties for an existing document. The Property inspector makes it easy to access and change the most commonly used attributes of a document. For more information on the Property inspector, see "Using panels and the Property inspector" in Getting Started Help.</p> <p data-bbox="378 1226 740 1253"><i>[Flash MX 2004 Using Flash, p. 10]</i></p> <p data-bbox="378 1253 1401 1390">To set properties for a new or existing document in the Document Properties dialog box: ¶ 1 With the document open, select Modify > Document. ¶ The Document Properties dialog box appears. ¶ 2 For Frame Rate, enter the number of animation frames to be displayed every second. For most computer-displayed animations, especially those playing from a website, 8 fps (frames per second) to 12 fps is sufficient (12 fps is the default frame rate).</p> <p data-bbox="378 1421 740 1449"><i>[Flash MX 2004 Using Flash, p. 38]</i></p> <p data-bbox="378 1449 1317 1501">The Flash Player attempts to meet the frame rate you set; the actual frame rate during playback can vary on different computers.</p>

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	<p data-bbox="378 632 753 659">[Flash MX 2004 Using Flash, p. 306]</p> <p data-bbox="378 659 1461 772">(Optional) Specifies the level of anti-aliasing to be used during playback of your application. Because anti-aliasing requires a faster processor to smooth each frame of the SWF file before it is rendered on the viewer's screen, select a value based on whether speed or appearance is your top priority: [¶] Low favors playback speed over appearance and never uses anti-aliasing. [¶]</p> <p data-bbox="378 804 1430 856">Autolow emphasizes speed at first but improves appearance whenever possible. Playback begins with anti-aliasing turned off. If Flash Player detects that the processor can handle it, anti-aliasing is turned on. [¶]</p> <p data-bbox="378 888 1445 1001">Autohigh emphasizes playback speed and appearance equally at first but sacrifices appearance for playback speed if necessary. Playback begins with anti-aliasing turned on. If the frame rate drops below the specified frame rate, anti-aliasing is turned off to improve playback speed. Use this setting to emulate the Antialias command in Flash (View > Preview Mode > Antialias).</p> <p data-bbox="378 1033 878 1060">[Flash MX 2004 Getting Started with Flash, p. 21]</p> <p data-bbox="378 1060 1461 1173">The Timeline status display at the bottom of the Timeline indicates the selected frame number, the current frame rate, and the elapsed time to the current frame. [¶] Note: When an animation is played, the actual frame rate is displayed; this may differ from the document frame rate if the computer can't display the animation quickly enough.</p> <p data-bbox="378 1205 1153 1232">[Flash MX Professional 2004 Flash Lite 1.1 Authoring Guidelines, pp. 15–16]</p> <p data-bbox="378 1232 1445 1423">Performance optimization [¶] CPU speed in mobile phones varies among models and is typically much slower than the CPU speed in current desktop computers. Therefore, it is extremely important to consider application performance and optimization from the beginning of each project for creating Flash Lite content created for mobile phones. [¶] Note: In Flash MX Professional 2004, you can find tips on optimizing Flash applications. (Select Help > Using Flash -> Search and enter optimizing movies in the Keyword Searchtext box.) [¶] If you follow the simple guidelines described in this document to author your Flash Lite content, you can create rich and compelling content despite CPU limitations. [¶]</p> <p data-bbox="378 1455 1422 1507">Animation [¶] When creating animated content for a mobile phone, it is important to keep in mind the phone's CPU limitations. The following guidelines can help prevent your Flash Lite content from running</p>

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	<p>slowly: [¶] • If you need to provide intense or complex animation, experiment with changing the quality setting of the content. The default quality setting is Medium. [¶] To change the quality setting in Flash MX Professional 2004, select File > Publish Settings, and select the HTML tab. Select a quality setting from the Quality pop-up menu. [¶] Because changing the quality setting might noticeably affect the visual quality of the Flash Lite content, make sure to thoroughly test the SWF file.</p> <p>[Flash MX Professional 2004 Flash Lite 1.1 Authoring Guidelines, p. 19]</p> <p>Device speed and frames per second [¶] If the project contains static images, it's not likely that the device processor speed will be an issue. The complexity of Flash requires some important trade-offs when developing content for mobile phones. Until mobile phones have faster processors and there are improvements to other internal components, you must make adjustments to provide an experience that does not appear sluggish to users; otherwise, they won't use the application. [¶] Try to avoid full-screen wipes, fades, and animations. Remember that updating many pixels at a time can be slow, depending on the content. The performance of your Flash application depends on the number of open applications, available phone memory, processor speed, and screen resolution.</p> <p>[Flash MX Professional 2004 Flash Lite 1.1 Authoring Guidelines, p. 48]</p> <p>To create a Flash Lite 1.1 compatible SWF file: [¶] 1. In Flash MX Professional 2004, create a new document and name it FlashLiteTest fla. [¶] 2. Select File > Publish Settings, and then the Flash tab. In the Version pop-up menu, select Flash Lite 1.1. Click OK. [¶] 3. From the Property inspector select the Size button, and change your document properties so that width = 240, height = 266, and Frame Rate = 15. Click OK. Make sure to use the appropriate frame rate on the actual devices.</p> <p>[Flash MX Professional 2004 Flash Lite 1.1 Authoring Guidelines, p. 57]</p> <p>The development kit includes a variety of sample files (FLA and SWF files) that demonstrate many of the concepts and applications that are described in this document. These examples are included to help you create content for mobile phones. The files include capabilities examples, processor detectors, and data-driven examples. Be sure to view the readme.txt file in the folder associated with each sample file.</p>